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Centre canadien de la technologie des minéraux et de l'énergie

CURRENT COAL RESEARCH, DEVELOPMENT AND DEMONSTRATION PROJECTS IN CANADA

1986

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1986

COMPILED BY

J. BESHAI

TECHNOLOGY INFORMATION DIVISION

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CURRENT COAL RESEARCH, DEVELOPMENT AND DEMONSTRATION PROJECTS IN CANADA

FOREWORD

This document is the result of cooperation by members of many organizations involved in activities related to coal including the Mineral Policy Sector of EMR, the Natural Sciences and Engineering Research Council (Canada), the Canadian Electrical Association, and provincial departments. It is expected to serve as a comprehensive source of information on current coal R,D&D projects on a national basis for members of the Coal Association of Canada, federal and provincial government agencies and the general public.

To facilitate reference, the R,D&D projects have been grouped into the categories listed in the Table of Contents. The project title, a brief description of the work being carried out and information regarding the sponsoring organization, the contracted organization, the resources allocated and the status of the project are provided where available. Each project has been list only once, even though it is recognized that the nature of an individual project may encompass more than a single category. Indices of research organizations, sponsors and subject follow the projects. The subject index does not include projects which are included under the category in the Table of Contents and thus is intended to act more as an aid to browsing than as a precise retrieval tool.

PROJETS DE RECHERCHE, DE DÉVELOPPEMENT ET DE DÉMONSTRATION SUR LE CHARBON AU CANADA

AVANT-PROPOS

Le document est le fruit de la coopération entre les membres de plusieurs organismes participant à des activités reliées au charbon, y compris le Secteur de la politique minérale de EMR, le Conseil de recherche en sciences naturelles et en génie, la Canadian Electrical Association, et les ministères provinciaux. Celle-ci sera utilisée comme source de renseignements sur les projets courants de R, D et D à l'échelle nationale par les membres de la Coal Association of Canada, les organismes fédéraux et provinciaux et le grand public.

Dans le but de faciliter la consultation, les projets de R, D et D ont été regroupés sous diverses catégories figurant à la Table des matières. Le titre du projet, une brève description des travaux effectués et des renseignements concernant l'organisme responsable, l'organisme répondant, l'attribution des ressources et la situation du projet sont fournis lorsque disponibles. Chaque projet n'appararaît qu'une seule fois sur la liste bien qu'il va de soit qu'un projet indépendant puisse englober plus d'une catégorie. Le répertoire des organismes de recherche et des organismes responsables est présenté à la suite des projets. La liste par sujet n'inclut pas les projets qui apparaissent par catégorie dans la Table des matières et, par conséquent celle-ci doit être utilisée à des fins de repérage plutôt qu'à titre d'instrument de recherche précis.

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COAL R, D AND D PROJECTS

1986

compiled by

J. Beshai

Technology Information Division

EXPLORATION, RESERVE & RESOURCE EVALUATION

1

Coal thickness trends and lithofacies in the Upper Gething Formation (Chamberlain Member)

Coals of the Upper Gething Formation (Chamberlain Member) will be evaluated in terms of areal extent, thickness trends and relationship to marine and continental lithofacies. New areas underlain by potentially thick coal seams will be identified.

SPONSOR: B.C. - Canada, Mineral Development Agreement
CONTRACTOR: A. Legun
CONTACT: A. Legun
COST ESTIMATE, FUNDING: $10,000 in 1986
REPORTS (TITLES): Geological Fieldwork, 1984

2

Coal-Paleozois Mesozoic and Testiary, Western District of Mackenzie and Northern Yukon Territory

Examine the structural framework, burial history, startigraphy, quality, composition and areal distribution of Upper Devonian, Lower Carboniferous, Lower Cretaceous, Upper Cretaceous and Lower Testiary coal seams in the Northern Condillera and contigous Interior Platform.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Inhouse
CONTACT: D.K. Norris
COST ESTIMATE, FUNDING: $10,000 in 1986

3

Stratigraphy and Sedimentology of the Lower Cretaceous Hulcross and Boulder Creek formations, Rocky Mountain Foothills, Alberta and British Columbia

To describe the Lower Cretaceous stratigraphic successions; to collect samples for laboratory studies, and to collect fossil flora and fauna; to provide data on the origin, distribution and continuity of coal seams within the Boulder Creek formation throughout the region; to attempt to determine criteria useful in determining the sub-environments in which the marine fluvial-deltaic sediments were deposited, and to eventually provide a regional geological model that will be of assistance in determining the potential coal resources of this and other regions.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	D.W. Gibson

4

Petrographic analyses of coals in the Saunders Group, Outer Foothills Belt, Alberta

Determine petrographic character of these coals and establish vertical and lateral changes in petrography. Determination of rank. Investigate possible correlation between petrography and rank changes with sedimentological studies of Jeizykiewicz.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	A.R. Cameron

5

Sedimentalogical studies of cost-bearing Upper Certaceous and Paleocene formations, Alberta Foothills

Establish the stratigraphic and sedimentological framework of Upper Cretaceous and Paleocene formations in the foothills of Alberta as a basis for evaluation of their coal resource potential.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	J. Jeirykiewicz

6

Stratigraphy and sedimentology of the Lower Cretaceous Gething Formation Rocky Mountains Foothills, Alberta and British Columbia

To describe the lower cretaceous stratigraphic succession; to collect samples for laboratory studies and to collect fossil flora and fauna; to provide data on the origin, distribution and continuity of coal seams throughout the region; to attempt to determine criteria useful in determining the sub-environments in which the fluvial-deltaic sediments were deposited, and to eventually provide a regional geological model that will be of assistance in determining the potential coal resources of this and other regions.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	D.W. Gibson

7

Palynological studies of Mesozoic and Tertiary Coal Measures in Western and Northern Canada

To establish palyno-stratigraphic zonations of coal measures and contiguous strata as an aid to petrological, sedimentological and structural interpretations of coal basins. Where applicable to correlate coal seams by means of spore and pollen histograms. To describe and classify recovered pollen and spores as necessary to accomplish the above objectives.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	A.R. Sweet

8

Sedimentology of the coal-bearing Upper Cretaceous and Paleocene Alberta Foothills and Plains

Establish the stratigraphic and sedimentological framework in the Foothills as a basis for assessing coal resource potential; and provide a geological base for the stratigraphic correlation between the coal-bearing deposits in the Foothills and those of the Plains.

SPONSOR:	EMR, GSC/ISPG
CONTRACTOR:	Inhouse
CONTACT:	T. Jerzykiewicz
COST ESTIMATE, FUNDING:	$9 K
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	GSC Current Research, Part B, 1985
	GSC Current Research, Part B, 1986

9

Stratigraphy and sedimentology of the Lower Cretaceous Hulcross and Boulder Creek formations, Rocky Mountain Foothills, Alberta and British Columbia

Describe the stratigraphic succession; provide data on the origin and distribution of coal; determine criteria useful for interpreting the subenvironments in which the marine-fluvial-deltaic sediments were deposited; and provide a regional geological model to assist determining the potential cost resources of this and other regions.

SPONSOR: EMR, GSC/ISPG
CONTRACTOR: Inhouse
CONTACT: D.W. Gibson
COST ESTIMATE, FUNDING: $4 K
STATUS, TIMETABLE: Started 1984/ complete 1987

10

Compilation of arctic coal deposit information for Geological Survey of Canada compendium of Canadian coal resources

(OF3SG 23294-6-0627; 73294-6-0627/01-SG).

SPONSOR: EMR, GSC
CONTRACTOR: E.A. Schiller and Associates, Calgary, Alberta
COST ESTIMATE, FUNDING: $7,500
STATUS, TIMETABLE: Awarded September 1986

11

Studies of alluvial and related sedimentation

Alluvial sedimentation in relation to coal deposition; paleoclimatic and tectronic influence will also be addressed: Sydney Basin, N.S.; Cumberland Basin, N.S.; Cardomin Formation, B.C.

SPONSOR: NSERC
CONTRACTOR: University of Ottawa, Ottawa, Ontario
CONTACT: Dr. B.R. Rust
COST ESTIMATE, FUNDING: $30 K/year
STATUS, TIMETABLE: On-going

12

Sedimentology of coal-bearing sequences

Research into depositional processes affecting coal distribution in mesozoic and benozoic basins in Ontario, British Columbia, Yukon and N.W.T., including Mattagami Formation (DGFL and PT) Rock River, Tintina Trench, White Horse Trough (DL) and Heilberg Formation (SF).

CONTRACTOR: Laurentian University, Sudbury, Ontario
CONTACT: D.G.F. Long, S. Foley and P. Telford
COST ESTIMATE, FUNDING: $2-10K
STATUS, TIMETABLE: On-going (thesis by S. Foley on Heilberg by the end of 1986)
REPORTS (TITLES): Rock River: Yukon Exploration and Geol 1983, (1985), p.60-68

13

Application of polyacrylamide mud to diamond drilling operations in coal measure strata

Diamond drilling in the Pictou Coal Field to depths of 300 m to 800 m has historically been difficult, especially in disturbed strata. Use of polyacrylamide drilling muds and controlled drilling techniques resulted in stable penetration rates, and significantly improved hole conditions and core recovery.

SPONSOR: Suncor Inc.
CONTACT: E.M. Fraser (Suncor Inc. Resources Group, Calgary)

CONTRACTOR: Poly-Drill Products Ltd.
COST ESTIMATE, FUNDING: Not isolated
STATUS, TIMETABLE: Work is completed
REPORTS (TITLES): A professional paper is planned for presentation in 1986.

14

Develop application of bentonite for permanently sealing diamond drill holes in coal measure strata

Exploration diamond drilling in the Pictou Basin at depths of 300-800 m would intersect one or more seams which will in future be mined. "Benseal", a bentonite product marketed by Baroid, was found to be more convenient, less costly and a superior sealant compared to conventional cementing methods. Tests were required to perfect the mix design, mixing equipment and pumping procedure. Regulatory authorities approved the technique.

SPONSOR: Suncor Inc.
CONTACT: E.M. Fraser (Suncor Inc. Resources Group, Calgary)
CONTRACTOR: Logan Drilling Ltd.
COST ESTIMATE, FUNDING: Not isolated
STATUS, TIMETABLE: Work is completed
REPORTS (TITLES): A professional paper is planned for presentation in 1986.

15

Review and evaluation of existing and potential methods of sealing exploration boreholes offshore or through major water-bearing strata

SPONSOR: EMR, CANMET
CONTRACTOR: Associated Mining Consultants Ltd.
CONTACT: Alan L. Craven, P.Eng.
COST ESTIMATE, FUNDING: $30 K

STATUS, TIMETABLE: Completed

REPORTS (TITLES): Report available.

16

Geologic index of coal core at the Charlie Lake Core Library

Record geologic formations intersected by each coal borehole. Create borehole listings for each formation.

SPONSOR: BCMEMPR

CONTRACTOR: Andrew Legun

CONTACT: Andrew Legun

COST ESTIMATE, FUNDING: $4000 in 1986

STATUS, TIMETABLE: Indexing to be completed in 1986.

17

Borehole geophysics: Application to coal

To improve borehole methods for the detection and evaluation of coal.

SPONSOR: EMR, GSC - RGG

CONTACT: C.J. Mwenifumbo

18

Borehole Geophysics: Electrical and Magnetic Techniques

To contribute to the development of borehole mining geophysics technology, as a means of improving the efficiency, and effectiveness of mineral exploration practices and geophysical techniques applied to engineering and geological mapping.

SPONSOR: EMR, GSC - RGG

CONTACT: A.V. Dyke

19

Borehole Geophysics / Applications Development

To develop and demonstrate the application of integrated borehole geophysical measurements in mineral exploration and mining. To determine methods to quantify these measurements, and to proceed with the requisite experimental development.

SPONSOR: EMR, GSC - RGG
CONTACT: P.G. Killeen

20

Very low frequency geophysical techniques in coal exploration

Results of the project indicate that VLF EM surveys have limited use in mountain coal exploration due to the abundance of conductive overburden which subdues bedrock response. However, VLF resistivity programs can provide a great deal of subsurface information if used in conjunction with outcrop mapping and drilling data. Although coal subcrops may or may not be directly detectable due to depth of weathering, other market horizons may also be easily identified if the VLF responses have been tied into nearby strata where the geology is understood. Further work on "resistivity typing" in order to establish characteristic model curves would greatly enhance VLF techniques.

SPONSOR: Smoky River Coal Limited and
Alberta Office of Coal Research and Technology
CONTRACTOR: Smoky River Coal Limited
CONTACT: Richard Dawson
COST ESTIMATE, FUNDING: $30,000
STATUS, TIMETABLE: Complete September, 1985
REPORTS (TITLES): Very Low frequency Geophysical Techniques in Coal Exploration - Final Report

21

Coal seam correlation, south half of Elk Valley coalfield, southeastern British Columbia

Detailed analysis of drill core and corresponding geophysical logs has led to proposed correlation of the imperial coal seam over a distance of 16.5 km along strike, and tentative correlation of two other seams (named Ewin and Banner). The basal coal zone being compared and contrasted over the same area.

SPONSOR:	BCMEMPR
CONTACT:	D. Grieve
COST ESTIMATE, FUNDING:	$5 K
STATUS, TIMETABLE:	1986 completion anticipated
REPORTS (TITLES):	Geological fieldwork 1985

22

Surface geophysical methodology

Test various geophysical methods to delineate zones of disturbed bedrock and coal sub-crops.

SPONSOR:	TransAlta Utilities
CONTACT:	D. Nikols
CONTRACTOR:	AORCT
COST ESTIMATE, FUNDING:	$500 K
STATUS, TIMETABLE:	In progress
REPORTS (TITLES):	Limited quantities of 1983 phase available

23

In-seam coal characterization

To assess the needs of the coal mining industry with respect to coal characterization, and to begin the development and application of

geophysics for quality determination prior to mining. It is expected that the cost effectiveness of obtaining such information will be greatly improved over conventional coring, sampling and testing.

SPONSOR:	AOCRT
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$94,000
STATUS, TIMETABLE:	Beginning April 1986; complete by March 1987

24

Instrumentation for coal mining geophysics

To conduct a definitive state of the art review of existing geophysical technology directed toward improved cost effective methods of coal exploration.

SPONSOR:	AOCRT
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$68,000
STATUS, TIMETABLE:	Complete, March 1986
REPORTS (TITLES):	Present and Potential Application of Geophysics to Coal Exploration in Alberta; Report confidential to AOCRT

25

Geophysical data from the Sydney coalfield

Examination of archival geophysical data from the Sydney coalfield, Nova Scotia to identify seafloor longwall subsidence profiles (03SQ 23440-6-9026; 23440-6-9026/01-SQ).

SPONSOR: EMR, CANMET
CONTRACTOR: McGregor Geoscience Ltd., Dartmouth, Nova Scotia
COST ESTIMATE, FUNDING: $29,813
STATUS, TIMETABLE: Awarded Aug. 1986

26

Glacial thrusting of bedrock

Air photo identification with ground followup.

SPONSOR: TransAlta Utilities
CONTRACTOR: Alberta Research Council, Geological Survey
CONTACT: C.S. Moran
COST ESTIMATE, FUNDING: $325 K
STATUS, TIMETABLE: In progress
REPORTS (TITLES): 1983 phase report available.

27

Coal reserves assessment

To provide realistic assessments of Canada's coal reserves and coal mining productivity, and publish data on Canada's commercial coal quality, including trace elements and coal standards work.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: A. Romaniuk
COST ESTIMATE, FUNDING: $331 K
STATUS, TIMETABLE: Continuing

28

Resource evaluation and geology of coal deposits of western and northern Canada

To conduct resource evaluation programs required for the National Coal Inventory and to recommend the office and/or field studies to be undertaken to meet the requirements of the inventory program. To acquire industry and provincial government data on Canada's coal deposits. To study the geological framework within which these coals occur. To provide authorative advice to senior departmental officials and to scientists in government and industry on the resource potential of Canada's coal deposits. To maintain up-to-date knowledge of coal fields in Canada.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Inhouse
CONTACT: G.G. Smith

29

Resource evaluation and geology of coal deposits

To conduct resource evaluation programs required for the National Coal Inventory and to recommend the office and/or field studies to be undertaken to meet the requirements of the inventory program. To acquire industry and provincial government data on Canada's coal deposits. To study the geological framework within which these coals occur. To provide authoriatative advice to senior departmental officials and to scientists in government and industry on the resource potential of Canada's coal deposits. To maintain up-to-date knowledge of coal fields in Canada.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Inhouse
CONTACT: J.D. Hughes

30

Environmental assessment of coal resource development, Canadian Cordillera

Assessment of the geologic and hydrologic impact of open pit coal mining and emplacement of coal spoil and the investigation of geotechnical problems attendant with the reclamation of lands disturbed by coal mining operations in the Canadian Cordillera.

SPONSOR: EMR, GSC - TS
CONTRACTOR: Inhouse
CONTACT: L.E. Jackson

31

Resource evaluation and geology of coal deposits of western Canada

To conduct resource evaluation programs required for the National Coal Inventory and to recommend the office and/or field studies to be undertaken to meet the requirements of the inventory program. To acquire industry and provincial government data on Canada's coal deposits. To study the geological framework within which these coals occur. To provide authoriatative advice to senior departmental officials and to scientists in government and industry on the resource potential of Canada's coal deposits. To maintain up-to-date knowledge of coal fields in Canada.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Inhouse
CONTACT: F.M. Dawson

32

Stratigraphic and coal resource analyses of coal-bearing basins in Arctic Canada

Study coal-bearing strata of the Arctic Platform, Franklinian Geosyncline and Sverdrup Basin with special emphasis on the late Cretaceous-Lower Tertiary Eureka Sound Formation. Provide data for the National Coal Inventory.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	B.D. Ricketts
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	Bulletin of Canadian Petroleum Geology, Dec. 1984
	GSC Current Research, Part B, 1986

33

Resource evaluation and geology of the Battle River Coalfield, Lower Horseshoe Canyon Formation, central Alberta

Using GSC-developed computer-assisted techniques, establish a comprehensive geological model of the coalfield; determine resource quantities and distributions of coal quality attributes; and determine factors which controlled the origins and distributions of coals based on lithostatigraphic relationships, sedimentology, organic petrology, palynology, etc.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	F.M. Dawson
COST ESTIMATE, FUNDING:	$15 K
STATUS, TIMETABLE:	Started 1985 / complete 1987

34

Resource evaluation and geology of the Willowbunch Coalfield, Ravenscrag Formation, southern Saskatchewan

Using GSC-developed computer-assisted techniques, establish a comprehensive geological model of the coalfield; determine resource quantities and distributions of coal quality attributes; and determine factors which controlled the origins and distributions of coals based on lithostatigraphic relationships, sedimentology, organic petrology, palynology, etc.

SPONSOR: EMR, GSC - ISPG
CONTACT: J.D. Hughes
COST ESTIMATE, FUNDING: $15 K
STATUS, TIMETABLE: Start 1985 / complete 1988

35

Resource evaluation and geology of the Morinville-Legal Coalfield, Horseshoe Canyon Formation, central Alberta

Using GSC-developed computer-assisted techniques, establish a comprehensive geological model of the coalfield; determine resource quantities and distributions of coal quality attributes; and determine factors which controlled the origins and distributions of coals based primarily on lithostatigraphic relationships and geometric domains expressed by the lithologic elements.

SPONSOR: EMR, GSC - ISPG
CONTACT: F.M. Dawson
COST ESTIMATE, FUNDING: $15 K
STATUS, TIMETABLE: Complete 1986

36

Geology and coal resources of the Dominion Coal Block southeastern British Columbia

This project involves summarizing of all known structural, stratigraphic and coal quality information, supplemented by minor field work. Computer-based deposit models of three areas within the block have been generated to be used in calculating resource tonnages and overburden ratios..

SPONSOR: BCMEMPR
CONTACT: D. Grieve, W.E. Kilby
COST ESTIMATE, FUNDING: $5 K
STATUS, TIMETABLE: 1986 completion anticipated
REPORTS (TITLES): Geological Fieldwork 1984, 1985

37

Resource evaluation and geology of the Estevan Coalfield, Ravenscrag Formation, southern Saskatchewan

Using GSC-developed computer-assisted techniques, establish a comprehensive geological model of the coalfield; determine resource quantities and distributions of coal quality attributes; and determine factors which controlled the origins and distributions of coals based on lithostatigraphic relationships, sedimentology, organic petrology, palynology, etc.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Inhouse
CONTACT: G.G. Smith
COST ESTIMATE, FUNDING: $15 K
STATUS, TIMETABLE: Complete 1987

38

Regional coal rank variations in the Kootenay Group and their relationships to the structural history of the southern Canadian Rocky Mountains

Define vertical and lateral coal rank variations and relate to associated stratigraphic/structural data to establish a reliable coal rank prediction capability in deformed terrains.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	A.R. Cameron
STATUS, TIMETABLE:	Complete 1987
REPORTS (TITLES):	GSC Paper 81-11 (1985)

39

Regional coalification studies in the Minnes, Bullhead and Fort St. John Groups, N.E. British Columbia

Determine regional coalification patterns, rank distributions and petrographic compositions of the Lower Cretaceous coals in the Foothills Belt of northeastern British Columbia and west-central Alberta.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	W.D. Kalkreuth
COST ESTIMATE, FUNDING:	$4 K
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	CSPG Bulletin, vol. 30 no. 1 (1982)
	Utah Geol. & Mineral Survey, Bulletin 118 (1982)
	CSPG Bulletin, vol. 32 no. 3 (1984)
	Fuel Processing Technology, vol. 9 (1984)

40

Coal - Paleozoic, Mesozoic and Tertiary of western District of Mackenzie and northern Yukon Territory

Examine structural framework, burial history, stratigraphy, quality, composition and distribution of coals in the northern cordillera and contiguous Interior Platform.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	A.R. Cameron
COST ESTIMATE, FUNDING:	$20 K
STATUS, TIMETABLE:	Started 1985 / complete 1988
REPORTS (TITLES):	CSC Current Research, Part A, 1986
	CSC Current Research, Part B, 1986

41

Studies of coal deposits of western and northern Canada

To provide geologic data for the evaluation of late paleozoic, mesozoic and tertiary coal resources of western and northern Canada. To prepare suitably illustrated geological reports for publication. To provide resource data for the National Coal Industry.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	B.D. Ricketts
COST ESTIMATE, FUNDING:	$20 K

42

Computer-based coal resource assessment methodologies

Develop and test computer-based systems for modelling and evaluating Canada's coal deposits for establishing a national inventory of coal resources on a consistently-defined basis and in a manner whereby

resource estimates can be subdivided according to a number of criteria such as environmental land classification, land tenure, coal quality and other factors which have profound socioeconomic implications.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Inhouse
CONTACT:	J.D. Hughes
COST ESTIMATE, FUNDING:	$35 K
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	GSC Bulletin 361 (1984)
	GSC Current Research, Part B, 1986

43

Construction of coal data computer files for British Columbia

Compile, interpret, verify and store coal exploration and analytical data provided by the British Columbia Ministry of Energy, Mines and Petroleum resources for computer-assisted studies of geological frameworks and distributions of resource quantities and qualities of coal deposits in British Columbia.

SPONSOR:	EMR, GSC - ISPG
CONTRACTOR:	Cal Data Ltd.
CONTACT:	J.D. Hughes
COST ESTIMATE, FUNDING:	$65 K
STATUS, TIMETABLE:	Started 1984 / complete 1994

44

Construction of coal data computer files for Nova Scotia

Compile, interpret, verify and store coal exploration and analytical data provided by the Nova Scotia Departments of Mines and Energy, for computer-assisted studies of geological frameworks and distributions of resource quantities and qualities of coal deposits in Nova Scotia.

SPONSOR: EMR, GSC - ISPG
CONTRACTOR: Mr. P. Watson
CONTACT: J.D. Hughes
COST ESTIMATE, FUNDING: $65 K
STATUS, TIMETABLE: Started 1985 / complete 1988
REPORTS (TITLES): GSC Current Research, Part B, 1986

45

Construction of coal data computer files for undeformed deposits of Alberta and Saskatchewan

Compile, interpret, verify and store coal exploration and analytical data provided primarily by private coal companies, for computer-assisted studies of geological frameworks and distributions of resource quantities and qualities of coal deposits in the undeformed regions of Alberta and southern Saskatchewan.

SPONSOR: GSC - ISPG
CONTRACTOR: ARD Resource Consulting Ltd.
CONTACT: G.G. Smith
COST ESTIMATE, FUNDING: $160 K
STATUS, TIMETABLE: Started 1978 / complete 1990

46

'Coalfile' - Information System

Coalfile is a computer-based data storage and retrieval system for coal exploration information. It provides an index to data contained in coal assessment reports and the updating and maintenance of this file is an ongoing project. The following files comprise the system.

1. Assessment report work summaries
2. Comments regarding reports
3. Maps
4. Trenches

5. Bulk Sample Occurrences
6. Boreholes

SPONSOR: BCMEMPR
CONTACT: C. Kenyon
COST ESTIMATE, FUNDING: $10 K
STATUS, TIMETABLE: Ongoing
REPORTS (TITLES): Geological Fieldwork, 1984, 1985

47

Coal Data Computer File

Construction of coal data computer files (OSIg 23294-6-0509; 23294-6-0509/01-SG)

SPONSOR: EMR
CONTRACTOR: Cal Data Ltd., Victoria, B.C.
COST ESTIMATE, FUNDING: $50,310
STATUS, TIMETABLE: Awarded July '86

48

Coal Data Computer File

Construction of coal data computer files for Cumberland and Debert coalfields, Nova Scotia.

SPONSOR: EMR
CONTRACTOR: P. Watson, Halifax, N.S.
COST ESTIMATE, FUNDING: $48,546
STATUS, TIMETABLE: Awarded June 1986

49

Coal Data Computer File

Construction of coal data computer files for Central Alberta and Southern Saskatchewan.

SPONSOR: EMR
CONTRACTOR: Summus Resource Evaluation Ltd., Edmonton, Alberta
COST ESTIMATE, FUNDING: $157 K

50

Geology and rank distribution of Elk Valley Coalfield (north half), Southeastern British Columbia

This represents the extension of a previously completed project within the Elk Valley coalfield (Preliminary Map 60). Project will involve stratigraphic and structural mapping along with petrographic analysis of coal samples.

SPONSOR: BCMEMPR (MDA)
CONTACT: D. Grieve
COST ESTIMATE, FUNDING: $19 K
STATUS, TIMETABLE: New Project, 1986-1988
REPORTS (TITLES): Geological Fieldwork, Preliminary Map Set (anticipated)

51

Geology of the Carbon Creek Area (NTS 93 O/15)

1:50,000 compilation mapping. Large areas of the map sheet are underlain by Gething Formation coal measures of Cretaceous age.

SPONSOR:	BC MEMPR
CONTRACTOR:	A. Legun
CONTACT:	A. Legun
COST ESTIMATE, FUNDING:	$3,500 in 1986
STATUS, TIMETABLE:	Preliminary map in 1986
REPORTS (TITLES):	Geological Fieldwork, 1984, 1985
INDEX:	geology, Carbon Creek area, mapping

52

Geology of the Bulter Ridge Area (NTS 94 B/1)

1:50,000 compilation mapping. Large areas of the map sheet are underlain by Gething Formation coal measures of Cretaceous age.

SPONSOR:	BC MEMPR
CONTRACTOR:	Andrew Legun
CONTACT:	Andrew Legun
COST ESTIMATE, FUNDING:	$1,000 in 1986
STATUS, TIMETABLE:	Preliminary map published. Final map in 1987
REPORTS (TITLES):	Geological Fieldwork, 1983
	Preliminary map, 1985

53

1:50 000 Geology compilation in NEBC (93 P/3&4)

Compilation of industry and government maps, field verification and supplimentation. Compilation and field mapping will be computer based.

SPONSOR:	BC MEMPR
CONTACT:	W.E. Kilby
COST ESTIMATE, FUNDING:	$60 K
STATUS, TIMETABLE:	1986
REPORTS (TITLES):	Preliminary maps, fieldwork, 1986

54

Altered volcanic ash/marker horizons in the coal-bearing strata of N.E.B.C.

Correlation of Tonstein and Bentonite beds in the lower Cretaceous Gething to Hulcross Formations. Examination of their stratigraphic positions, petrographic textures, mineral and chemical characteristics and ages.

SPONSOR: BC MEMPR
CONTACT: W.E. Kilby
COST ESTIMATE, FUNDING: $10 K
STATUS, TIMETABLE: 1986-87
REPORTS (TITLES): Geological fieldwork, 1983, 1984, 1985-1

55

Determination of radiocarbon age of peat samples

SPONSOR: Department of the Environment, Canada
CONTRACTOR: Saskatchewan Research Council, Saskatoon, Saskatchewan
COST ESTIMATE, FUNDING: $3,600

56

Geochemical analysis of coals and organic-rich sediments - Stellerton Basin Projects

(OSZ85-00189)

SPONSOR: EMR
CONTRACTOR: Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING: $15,476
STATUS, TIMETABLE: Awarded March 1986

57

Regional coalification studies in the Minnes Bullhead and Fort St. John Groups, N.E. British Columbia

To determine the regional coalification pattern of the lower Cretaceous Bullhead, Fort St. John and Minnes Groups in the foothills belt of northeastern British Columbia and west-central Alberta. To determine the petrographic composition of coal seams in the region to provide further data on coal quality and utilization and on deposit depositional environments of seam formation, Coal rank data and petrographic profiles of seams will contribute to stratigraphic correlations.

SPONSOR: EMR, GSC-ISPG
CONTACT: W. Kalkreuth

58

Regional coal rank variations in the Kootenay Formation and their relationship to the structural history of the Southern Canadian Rocky Mountains

To delineate vertical and lateral coal rank variation (by vitrinite reflectance) in the Kootenay Formation of the southern Rocky Mountains and Foothills. To utilize this and stratigraphic/structural data to interpret the relative timing of deformation and the relative contribution to total loading of structural and sedimentalogical logical components.

SPONSOR: EMR, GSC-ISPG
CONTRACTOR: Inhouse
CONTACT: A.R. Cameron

59

Geoscientific evaluation of economic coal measures in Central and Northwest B.C.

Study of the stratigraphy, structural development and depositional environments of economic coal measures (e.g., Klappen, Telkwa); and the correlation, qualities and ranks of coal seams; coal reserves; models for exploration and development.

SPONSOR:	B.C.E.M.P.R.
CONTRACTOR:	B.C.E.M.P.R.
CONTACT:	J. Koo, B.C.E.M.P.R.
COST ESTIMATE, FUNDING:	$10 K
STATUS, TIMETABLE:	ongoing
REPORTS (TITLES):	B.C.E.M.P.R. Geological fieldwork, 1982, 1983, 1984, 1985

60

Use of remote sensing such as side-looking airborne radar imagery for site-specific geological studies at Whitewood and Highvale Mines

Test the use of SLR methods to pinpoint geological structure in the planes environment.

SPONSOR:	Trans-Alta Utilities
CONTACT:	D. Nikols
CONTRACTOR:	Alberta Research Council
COST ESTIMATE, FUNDING:	$45 K
STATUS, TIMETABLE:	Phase I & II completed
REPORTS (TITLES):	Report unavailable for general circulation

MINING TECHNOLOGY

GENERAL

61

Operation research

Develop and implement, in consultation with industry, a mutually acceptable program of short to medium term activities in the areas of computer simulation for production scheduling and unit operations performance.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	D.B. Stewart
COST ESTIMATE, FUNDING:	$334 K
STATUS, TIMETABLE:	1991 completion

62

Coal mining in Alberta - 1986 - 2035

To prepare a report on how coal could be mined in Alberta in the next 56 years, bearing in mind the needs for new or improved technology and their implications for the future, particularly with respect to producing Alberta coal in quantities and at costs that are competitive in the marketplace.

SPONSOR:	AOCRT
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$70,000
STATUS, TIMETABLE:	Complete, January 1986
REPORTS (TITLES):	3-volume draft report confidential to AOCRT

63

Coal mining research

A variety of projects are being undertaken to research, develop and demonstrate new or improved technology for the mining and beneficiation of western Canadian coals.

SPONSOR:	Office of Coal Research and Technology under the Alberta/Canada Energy Resources Research Fund
CONTRACTOR:	Coal Mining Research Company
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	Final (confidential report submitted to AOCRT)

64

Underground mine foreman's training package

To develop and produce a training program for the purpose of preparing potential mine foremen in the province for the written examination required for qualification as a mine foreman in Alberta, and to provide the knowledge and understanding required for safe operation of a mine operation.

SPONSOR:	Alberta Occupational Health, Safety and Compensation Heritage Grant Program
CONTRACTOR:	McIntyre Mines
CONTACT:	John P.L. Bacharach
COST ESTIMATE, FUNDING:	$141,522
STATUS, TIMETABLE:	Complete
INDEX:	safety, underground mining

65

Geotechnical engineering

To develop and implement, in consultation with industry, a mutually acceptable program of short and medium term geotechnical activities.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: D.B. Stewart
COST ESTIMATE, FUNDING: $166 K
STATUS, TIMETABLE: 1991 completion

66

Unconventional coal mining

Review of unconventional coal mining concepts with potential application in western Canada.

SPONSOR: EMR, CANMET
CONTRACTOR: Monenco Consultants Ltd. Calgary, Alberta
CONTACT: D.B. Stewart
COST ESTIMATE, FUNDING: $41,675
REPORTS (TITLES):

67

Robotics for mining control

To identify one or more specific surface mining operations suitable for the application of robotics, and to define the specific details required for beginning with either prototype construction or demonstration trials of selected automatic systems.

SPONSOR: AOCRT
CONTRACTOR: Coal Mining Research Company
CONTACT: R.G. Chopiuk
COST ESTIMATE, FUNDING: $100,000
STATUS, TIMETABLE: Beginning April 1986; complete by March 1987

68

UEL footwall anchoring

To examine the technical and economic feasibility of using rock anchors as a means of footwall support in open pit mines.

SPONSOR:	Smoky River Coal Limited
CONTRACTOR:	Smoky River Coal Limited
CONTACT:	David Fawcett
STATUS, TIMETABLE:	Ongoing, scheduled for completion in November 1986
REPORTS (TITLES):	Martin, D.C., Sheehan, P.L., Fawcett, D., 1985 Geotechnical assessments and Design of Optimum Method of Excavation of a Footwall Slope at Smokey River Coal Limited

69

Truck management systems

Demonstration and evaluation of an integrated truck managemene system in a producing Canadian surface coal or oil sand mine (09SQ23440-6-9020; 23440-6-9020-01-SQ).

SPONSOR:	EMR, CANMET
CONTRACTOR:	Gregg River Resources Ltd., Hinton, Alberta
COST ESTIMATE, FUNDING:	$100,000
STATUS, TIMETABLE:	Awarded August 1986

70

Demonstration and evaluation of blast casting in a production Canadian surface coal mine

(09SQ23440-6-9023; 23440-6-9042-01-SQ).

SPONSOR: EMR, CANMET
CONTRACTOR: Fording Coal Ltd. Elkford, B.C.
COST ESTIMATE, FUNDING: $94,102
STATUS, TIMETABLE: Awarded September 1986

UNDERGROUND MINING

71

Water jet and water jet assisted cutting technology in underground coal mines

Investigation of the potential benefits, advantages, disadvantages and health/safety risks associated with the introduction of water jet and jet assisted cutting technology in underground coal mines.

SPONSOR: EMR, CANMET
CONTACT: G.A. Haslett
CONTRACTOR: International Energy Agency, London, England
STATUS, TIMETABLE: Continuing

72

Replacement of wood in underground mines

Non-combustible replacement materials, methods and techniques to reduce the usage of wood in underground coal mines.

SPONSOR: EMR, CANMET
CONTRACTOR: Jacques Whitford and Associates, Halifax, N.S.
COST ESTIMATE, FUNDING: $59,988

73

Analytical approach to design of pillars in coal - Phase III

SPONSOR:	EMR
CONTRACTOR:	Coal Mining Research Company
COST ESTIMATE, FUNDING:	$76,620
STATUS, TIMETABLE:	Complete
REPORTS (TITLES):	Final report available from CANMET and Micromedia Ltd. "An Analytical Approach to the Design of Pillers in Coal" OST83-00401, Micromedia Order No. 86-1224

74

STRATA CONTROL

Glacial thrusting of bedrock: Effect on highwall stability

Airphoto identification with ground followup. Integration with surface geophysics

SPONSOR:	TransAlta Utilities
CONTRACTOR:	Alberta Research Council Geological Survey
CONTACT:	S. Moran
COST ESTIMATE, FUNDING:	$250 K
STATUS, TIMETABLE:	In progress 1984-86
REPORTS (TITLES):	Preliminary reports submitted to TAU

75

A reference guide to strata control monitoring in the 1980's

SPONSOR:	Government of Alberta, Workers' Health, Safety and Compensation, Heritage Grant Program

CONTRACTOR: Coal Mining Research Company
Associated Mining Consultants Ltd.,
Geological Survey

CONTACT: D. Green (CMRC)
P.L. Wright (AMCL)

COST ESTIMATE, FUNDING: $20 K

STATUS, TIMETABLE: Ongoing

76

Base friction modelling training program

To produce educational materials including video and slide demonstrations of a base friction model which demonstrates the mechanics of deformation and failure around single and multiple openings in bedded rock and a manual titled "A Guide to Strata Mechanics in Underground Coal Mines using Base Friction Modelling" for use in training mine personnel in basic principles of strata mechanics.

SPONSOR: Alberta Occupational Health, Safety and Compensation Heritage Grant Program

CONTRACTOR: Coal Mining Research Company

CONTACT: Don H. Green

COST ESTIMATE, FUNDING: $45,900

STATUS, TIMETABLE: Complete

77

Alternatives to conventional support

Evaluation of grout filled lightweight tubular steel as an alternative to conventional support in large excavations in coal mines or other places subject to high stress.

SPONSOR: EMR, CANMET
CONTACT: P. Cain
CONTRACTOR: Technical University of Nova Scotia
STATUS, TIMETABLE: continuing

78

Reference guide to strata control in the 1980's

To determine prediction technologies for roof failure which have potential application in Western Canadian coal mines and for underground oil sand mining in Alberta by reviewing the work of agencies in other jurisdictions.

SPONSOR: Alberta Occupational Health, Safety and Compensation Heritage Grant Program
CONTRACTOR: Coal Mining Research Company
CONTACT: Don H. Green
COST ESTIMATE, FUNDING: $18,460
STATUS, TIMETABLE: In-progress

79

Debriefing of Donkein-Morien rock support interaction contract

SPONSOR: EMR, CANMET
CONTRACTOR: Golder Associates (eastern Canada) Ltd. Mississauga, Ontario
COST ESTIMATE, FUNDING: $4,935

80

Evaluation of the CANMET/Westar Program for Subsidence Monitoring Over Thick and Steep Seam Mining

SPONSOR: EMR, CANMET
CONTRACTOR: Westar Engineering Ltd.
Vancouver. B.C.
COST ESTIMATE, FUNDING: $15,573

81

Strata mechanics

Evaluate strata mechanics technology for improved ground control in eastern Canadian coal mines.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
COST ESTIMATE, FUNDING: $350 K
STATUS, TIMETABLE: continuing

82

Overcoring and manufacturing in situ stress determination at the Lingan and Prince Mines, Sydney Coalfield, N.S.

SPONSOR: EMR, CANMET
CONTACT: T.R.C. Aston
CONTRACTOR: Golder Associates
COST ESTIMATE, FUNDING: $29 K
STATUS, TIMETABLE: continuing

83

Cone indentor

Calibration of cone indentor to traditional uniaxial compressive strengths of carboniferous strata in the Sydney coalfield

SPONSOR:	EMR, CANMET
CONTACT:	P. Cain
CONTRACTOR:	University College of Cape Breton, N.S., Sydney, N.S.
COST ESTIMATE, FUNDING:	$11 K
STATUS, TIMETABLE:	complete
REPORTS (TITLES):	Available from CANMET and Micromedia Ltd. Calibration of the NCB cone indentor for the Sydney coalfield strata. OST 85-0009 Micromedia order no. 96-4408

84

Stabilization of coal measures strata

Stabilization of coal measures strata with water based chemical agents, Part II

SPONSOR:	EMR, CANMET
CONTACT:	P. Cain
CONTRACTOR:	Jacques Whitford and Associates Ltd., Halifax, N.S.
COST ESTIMATE, FUNDING:	$28 K
STATUS, TIMETABLE:	completed
REPORTS (TITLES):	Stability enhancement of coal measures strata with aqueous-based chemical agent. Available from CANMET and Micromedia Ltd. (OSQ83-00152) Micromedia order no. 85-3430

85

Triaxial test development

To develop a laboratory testing method using a computer-controlled, high-capacity load frame, which will reduce the number of samples required to obtain triaxial strength data for coal and rock. The technique is expected to improve the cost-effectiveness of obtaining geotechnical data for mine design.

SPONSOR:	AOCRT
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$105,000
STATUS, TIMETABLE:	Beginning April 1986; complete by March 1987

86

Strata control reference

To compile a reference manual on strata control technology for underground mines.

SPONSOR:	Alberta Occupational Health, Safety and Compensation
CONTRACTOR:	Coal Mining Research Company
CONTACT:	D.H. Green
COST ESTIMATE, FUNDING:	$18,000
STATUS, TIMETABLE:	In progress
REPORTS (TITLES):	Waste Dump Design for Erosion Control Report confidential to RRTAC

87

Measurement and control of mining subsidence handbook

To produce a handbook describing methods of prediction, measurement and control of mining subsidence with case studies of precautionary and remedial measures which will be applicable to conditions in western Canada.

SPONSOR:	Alberta/Canada Energy Resources Research Fund
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$123 K
STATUS, TIMETABLE:	Completed March 1986
REPORTS (TITLES):	Book published by CMRC. "Measurement and Control of Mining Subsidence", available from CMRC at a cost of $45.00 Cdn.

88

Rock bolt design

To design concepts for rock bolts are assessed by physical model testing and analytical analyses. Homogeneous and jointed rock masses are considered.

SPONSOR:	NSERC
CONTRACTOR:	P.K. Kaiser
STATUS, TIMETABLE:	Completion 1987

89

Subsidence behaviour of mine spoils

The potential magnitude and duration of subsidence of reclaimed mine spoil is being investigated in view of recommending operational guidelines for miners and regulators for mitigating deleterious effects of subsidence.

SPONSOR:	Alberta Research Council
CONTRACTOR:	Dept. of Civil Engineering, University of Alberta
CONTACT:	J.D. Scott
COST ESTIMATE, FUNDING:	$50,000/yr
STATUS, TIMETABLE:	Phase I completed 1987
REPORTS (TITLES):	Publications available

90

Brittle rupture mechanisms in circular openings

The influence of stress field, temperature and temperature changes, and discontinuities on the stability of circular openings is evaluated by numerical modelling and by physical tests. Hollow cylinder and true triaxial test are being conducted. The progressive rupture mechanism is simulated numerically.

SPONSOR:	NSERC Strategic Grant (1985-1987)
CONTRACTOR:	P.K. Kaiser
COST ESTIMATE, FUNDING:	$70,000/yr
STATUS, TIMETABLE:	Completion 1987

91

Models for monitoring ground movements in coal mines

The project will develop conceptual models of time-dependent and deformation dependent loss of strength of coal, test these models by laboratory experiments on the creep of coal under constant loads and compare displacement records observed in these tests with displacement records for local coal mines.

SPONSOR:	Alberta Energy and Natural Resources Coal Research Grant Program
CONTRACTOR:	D.M. Cruden, Department of Civil Engineering, University of Alberta, Edmonton, T6G 2G7
COST ESTIMATE, FUNDING:	$25,560
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	Papers submitted: Cruden, D.M., Leung, K.L., Masoumzadeh, S., 1987, A technique for estimating the complete creep curve of a brittle rock under uniaxial compression. Cruden, D.M., Masoumzadeh, S., 1986, Accelerating creep of the slopes of a coal mine, submitted to Rock Mechanics.

92

A detailed review and evaluation of hydrofracturing techniques for the prevention of rock/gas outbursts in Canadian underground mines

SPONSOR:	EMR, CANMET
CONTRACTOR:	Associated Mining Consultants Ltd.
CONTACT:	Alan L. Craven, P.Eng.
COST ESTIMATE, FUNDING:	$50 K
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	Reports available from CANMET and Micromedia Ltd. (OSQ 84-00244) Micromedia Order No. 85-5962) title as above.

MINE ENVIRONMENT

93

Coal mine environment

Contribute to enhanced health, safety and productivity in eastern Canadian coal mines through improved understanding and control of respirable airborne dust, ventilation and methane gas.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	D.B. Stewart
COST ESTIMATE, FUNDING:	$305 K
STATUS, TIMETABLE:	Continuing

94

Measurement of the spontaneous combustion characteristics of Pictou County coal samples

Old mines in the Pictou County coal field experienced problems with spontaneous combustion. Methods to evaluate the spontaneous combustion potential of coals have only been developed recently and since the old mines closed. Fresh ground samples of Foord seam were given an opportunity to self heat by contacting them with moisture laden oxygen at elevated temperatures. Time-temperature profiles were compared to coals of known spontaneous combustion character.

SPONSOR:	Suncor Inc.
CONTRACTOR:	Hazen Research
CONTACT:	P. Tucker (Suncor Inc. Pictou County Coal Project New Glasgow, N.S.)
COST ESTIMATE, FUNDING:	$1,500
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	None anticipated. Results are proprietary.

95

Environmental control

Develop and implement, in consultation with industry, a mutually acceptable program of short and medium term activities that contribute to improved understanding and control of spontaneous combustion methane and other coal handleability problems.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Inhouse
CONTACT:	D.B. Stewart
COST ESTIMATE, FUNDING$	106 K
STATUS, TIMETABLE:	1991 completion

96

The fractal structure of filter deposits and filters for characterizing respirable dust

This project is part of an ongoing project to use fractal geometry to describe systems of importance to the mining industry. In this project the build-up of filter cake deposits on the screen are being simulated along with the fractal description of filter cake beds. The use of fractal logic to describe flocculated suspensions and the structure of fibers and matt filters is being developed.

SPONSOR:	NSERC
CONTRACTOR:	Laurentian University, Sudbury, Ontario
CONTACT:	Dr. B. Kaye, Mr. G.G. Clark, Physics Department
COST ESTIMATE, FUNDING:	$12,000
STATUS, TIMETABLE:	1987 completion

97

Methane prediction

A detailed review and evaluation of methane prediction techniques and their applicability to Canadian coal mines.

SPONSOR:	EMR, CANMET
CONTACT:	B.W. Konda
CONTRACTOR:	Norwest Resource Consultants Ltd., Calgary, Alta.
STATUS, TIMETABLE:	completed
REPORTS (TITLES):	Title as above. Available from CANMET and Micromedia Ltd. (OSQ85-00024) Micromedia Order no. 86-2803

98

Methane prediction techniques

Detailed review and evaluation of methane prediction techniques and their applicability to Canadian coal mines.

SPONSOR: EMR
CONTRACTOR: Northwest Resource Consultants Ltd., Calgary, Alta.
CONTACT:
COST ESTIMATE, FUNDING: $29,655

99

Methane measurement

Feasibility of using gaspils and other methods of remotely measuring methane in coal mines and preparation of a conceptual design for a suitable instrument.

SPONSOR: EMR, CANMET
CONTACT: B.W. Konda
CONTRACTOR: Moniteq Ltd., Concord, Ont.
COST ESTIMATE, FUNDING: $63 K
STATUS, TIMETABLE: completed

100

Design and construction of an apparatus to conduct methane gas studies on Canadian coals

SPONSOR: EMR, CANMET
CONTRACTOR: Zenon Environmental Inc. Burlington, Ont.
CONTACT: B.W. Konda
STATUS, TIMETABLE: continuing

101

Biological control of methane

SPONSOR: EMR, CANMET
CONTACT: R. Chakraborty
CONTRACTOR: Gemini Biochemicals Research Ltd., Calgary, Alberta

102

Conspec remote environmental monitoring system

Operational experience with the conspec remote environmental monitoring system in an operating underground Canadian coal Mine. (OSQ85-00259)

SPONSOR: EMR, CANMET
CONTRACTOR: Cape Breton Development Corporation, Sydney, N.S.
CONTACT: B.W. Konda
COST ESTIMATE, FUNDING: $253 K
STATUS, TIMETABLE: continuing

103

Tracer gas sampler

Development of a sequential tracer gas sampler for use in underground coal mines.

SPONSOR: EMR
CONTRACTOR: McGill University, Montreal, Quebec
CONTACT: P. Farrant, Dept. of Occupational Health
COST ESTIMATE, FUNDING: $47,760

PREPARATION

PLANT DESIGN AND PROCESS CONTROL

104

Deep cleaning of coal

Development and design of a pilot plant for coal deep cleaning processes.

SPONSOR: EMR
CONTRACTOR: Kilborn Engineering (B.C.) Ltd., Vancouver, B.C.
COST ESTIMATE, FUNDING: $89,669

105

Numerical analysis of process plant yield losses

To demonstrate the usefulness of numerical analysis techniques for evaluating historical preparation plant data, and demonstrate their use in analyzing feed fluctuations to a flotation plant.

SPONSOR: AOCRT
CONTRACTOR: Coal Mining Research Company
CONTACT: S.G. Butcher
COST ESTIMATE, FUNDING: $52,800
STATUS, TIMETABLE: FY 1985-86
REPORTS (TITLES): Submitted (2 vols) confidential to AOCRT, (may be released later).

106

Coal beneficiation mini plant

Construction of a computer-controlled multi-circuit 50 kg/h coal beneficiation pilot plant.

SPONSOR: NSERC

CONTRACTOR: Technical University of Nova Scotia
Coal Research Laboratory, Dept. of Chemical Engineering

CONTACT: A.M. Al Taweel

COST ESTIMATE, FUNDING: $45 K

STATUS, TIMETABLE: Commissioning summer 1985

107

Process control development

Develop on-line process monitors and controls and to demonstrate the technology in both the inhouse (10 t/h) and mobile pilot plants.

SPONSOR: CANMET, EMR

CONTRACTOR: Inhouse

CONTACT: N.E. Anderson

COST ESTIMATE, FUNDING: $313 K

STATUS, TIMETABLE: 1987 completion

108

Devon facility design and installation

Design, purchase and install laboratory and pilot plant equipment for CMRC's new facilities in Devon Coal Research Centre. Emphasis is on coal drying pilot units.

SPONSOR: A/CERRF

CONTRACTOR: Coal Mining Research Company

CONTACT: S.G. Butcher

STATUS, TIMETABLE: completed

REPORTS (TITLES): Pilot plant commissioning complete

109

Economic evaluation of alternative processes

Determine the optimum level of coal preparation and upgrading for western Canadian coals to meet export market specifications.

SPONSOR: A/CERRF
CONTRACTOR: Coal Mining Research Company
CONTACT: S.G. Butcher
COST ESTIMATE, FUNDING: $14 K (FY84/85)
STATUS, TIMETABLE: completed
REPORTS (TITLES): Comparative Economics of Coal Preparation Processes, S.G. Butcher, P. McIntosh

BENEFICIATION POTENTIAL

110

Beneficiation potential of eastern Canadian coals

SPONSOR: EMR
CONTRACTOR: SNC Incorporée, Montreal, Quebec
COST ESTIMATE, FUNDING: $176,645

111

Coal characterization

Characterize coals in terms of their washability and upgrading potential. Develop methods for characterizing the properties and behaviour of coal relevant to processing and utilization.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: N.E. Anderson
COST ESTIMATE, FUNDING: $190 K
STATUS, TIMETABLE: 1991 completion

112

Coal beneficiation potential support studies

SPONSOR: EMR
CONTRACTOR: Coal Mining Research Company, Devon, Alberta
COST ESTIMATE, FUNDING: $227,031

113

Completion of coal beneficiation support studies

SPONSOR: EMR
CONTRACTOR: Coal Mining Research Company, Devon, Alberta
COST ESTIMATE, FUNDING: $43,564

114

Comparative examination of fly ash and magnetic heavy media for coal beneficiation

A magnetic concentrate of high specific gravity will be prepared from Minto coal and tested as a substitute for magnetite in coal beneficiation.

SPONSOR: EMR, CANMET
CONTRACTOR: Research and Productivity Council, Fredericton, N.B.
CONTACT: D. Abbott
COST ESTIMATE, FUNDING: $26 K
STATUS, TIMETABLE: Completion 1986

115

Process development

Develop technology for improved recovery of marketable clean coal products from finely divided and/or oxidized coals. Evaluate the beneficiation requirements and potential of some Atlantic coals. Develop technology for the upgrading of low-rank Canadian coals.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
CONTACT: N.E. Anderson
COST ESTIMATE, FUNDING: $213
STATUS, TIMETABLE: 1991

FINE COAL

116

Predict the production of coal fines by certain Pictou Co. coals

The wet attrition milling method was applied to 6" diameter samples of Foord seam coal (in lieu of a bulk sample). Results will be correlated in due coarse with "Delta P" test results and actual experience eventually in mining and preparation. There is no relevant prior experience or data with Pictou Co. coals.

SPONSOR: Suncor Inc.
CONTRACTOR: Birtley Coal & Minerals Testing
CONTACT: P. Tucker (Suncor Inc. Pictou County Coal Project, New Glasgow, N.S.)
COST ESTIMATE, FUNDING: $10,000 to date
STATUS, TIMETABLE: 50% complete
REPORTS (TITLES): None - results are proprietary.

117

Beneficiation of ultra-fine high sulphur coals

Investigation into the beneficiation of ultra-fine high sulphur coal. In addition to conventional flotation experiments, agglomerate flotation and air-dissolved flotation will be evaluated.

SPONSOR: EMR, CANMET
CONTRACTOR: Coal Research Centre, University of British Columbia Vancouver, B.C.

CONTACT: J.S. Lascowski
COST ESTIMATE, FUNDING: $29,441 to date
STATUS, TIMETABLE: completed March 1985
REPORTS (TITLES): Beneficiation of Ultrafine High Sulphur Coal. Available from CANMET and Micromedia Ltd. (OST84-00161) Micromedia Order no. 85-6091

118

Field testing and demonstration

To effect technology transfer through on-site demonstration of existing and developing technologies in fine coal preparation. Work will be carried out using the following mobile modules: effluent treatment, dewatering (2 modules), and coal recovery.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
CONTACT: N.E. Anderson
COST ESTIMATE, FUNDING: $745
STATUS, TIMETABLE: continuing

119

Testing of fine coal samples on spirals for ash and sulphur removal

SPONSOR: EMR
CONTRACTOR: L. Kozadk, Edmonton, Alberta
COST ESTIMATE, FUNDING: $4,500

120

Influence of surface properties on the beneficiation of Atlantic coals

Evaluation of the effect of surface properties of Atlantic coal on their beneficiation (flotation, agglomeration and dewatering) characteristics, and the possibility of using conditioners to improve them.

SPONSOR: NRCC

CONTRACTOR: Technical University of Nova Scotia, Coal Research Laboratory, Dept. of Chemical Engineering.

CONTACT: A.M. Al Taweel and J. Wozhiczek

COST ESTIMATE, FUNDING: $24 K

STATUS, TIMETABLE: Complete

REPORTS (TITLES): Report available

DRY MAGNETIC SEPARATION

121

Dry magnetic separation of eastern coals

Dry magnetic separation of three eastern Canadian coals using a Sala High Gradient Magnetic Separator equipped with expanded metal matrices. The performance of this equipment is to be compared with that of a similar matrix type unit from Eriez Magnetics which uses super conducting electromagnets with very strong magnetic fields.

SPONSOR: EMR, CANMET

CONTRACTOR: Allis-Chalmers Ltd., Sola Magnetics Div.

CONTACT: I. Wechster

COST ESTIMATE, FUNDING: $17,718

STATUS, TIMETABLE: Completed 1985

REPORTS (TITLES): Dry Magnetic Separation of Eastern Coals
Available from CANMET and Micromedia Ltd.
(OSQ84-00280) Micromedia Order no. 86-1217

122

Dry magnetic separation of eastern coals

Dry magnetic separation for the removal of ash and sulphur minerals from three eastern Canadian coals with Eriez Superconducting matrix type separator to compare its performance and operating costs with

those of a conventional high gradient machine and those of a novel open gradient cryogenic units. Based on this study a recommendation will be made for the purchase of a superconducting magnetic separator.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Eriez Magnetics
CONTACT:	R. Jacop and J.A. Wernham
COST ESTIMATE, FUNDING:	$18,580
STATUS, TIMETABLE:	Completed 1985
REPORTS (TITLES):	Dry Magnetic Separation of Eastern Coals (Central test Laboratory, Eriez Magnetics) Available from CANMET and Micromedia Ltd. (OSQ84-00286) Micromedia Order no. 86-1854

123

Dry magnetic separation of eastern coals

Dry magnetic beneficiation of three eastern Canadian coal is to be carried out using a cryogenic superconducting open gradient separator. The performance of this equipment will be compared with that of a conventional high gradient magnetic separator and that of a superconducting high gradient matrix type separator.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Cryogenics Consultants Ltd., London, England
CONTACT:	J. Good and A. Stadtmuller
COST ESTIMATE, FUNDING:	$10,989
STATUS, TIMETABLE:	In progress

124

Comparative examination of fly ash and magnetite heavy media for coal beneficiation

(ISO85-00300)

SPONSOR:	EMR, CANMET
CONTRACTOR:	New Brunswick Research and Productivity Council, Fredericton, N.B.
CONTACT:	J. Good and A. Stadtmuller
COST ESTIMATE, FUNDING:	$26,300
STATUS, TIMETABLE:	Awarded March 1986

OIL AGGLOMERATION

125

Spherical Oil Agglomeration

Investigation of the use of spherical oil agglomeration in the beneficiation of low rank Canadian coals as an integrated part of the CANMET coprocessing process.

SPONSOR:	EMR, CANMET
CONTACT:	I. Ikura
CONTRACTOR:	SNC Inc., Montreal, Quebec
COST ESTIMATE, FUNDING:	$95 K
STATUS, TIMETABLE:	In progress/1986

126

Coal dustiness/size enlargement

Demonstrate selective agglomeration of fine coal to reduce dustiness and improve handleability of western Canadian coals.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R. Germain
COST ESTIMATE, FUNDING:	$22 K
STATUS, TIMETABLE:	Abandoned

127

Recovery of fine coal from scrubber effluents

Demonstrate that fine coal, normally lost in preparation plant tailings can be recovered from scrubber effluents by agglomeration.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	R. Germain
COST ESTIMATE, FUNDING:	$10 K
STATUS, TIMETABLE:	In abeyance

FLOTATION

128

Coal beneficiation in a continuous flow electrostatic separator

Investigation and development of a continuous electrostatic beneficiation apparatus for the separation of ash and sulphur from coal and the concentration of specific coal macerals.

SPONSOR:	NSERC
CONTRACTOR:	University of Western Ontario, Faculty of Engineering Science, London, Ontario
CONTACT:	J.D. Brown
COST ESTIMATE, FUNDING:	$20 K
STATUS, TIMETABLE:	Spring 1986
REPORTS (TITLES):	Ph.D. thesis available

129

Intensive coal cleaning and production of coal/slurry fuels

Investigation of the possibility of using aggregative flotation for intensively cleaning coal reducing its sulphur content and producing coal/slurry fuels.

SPONSOR:	NSERC
CONTRACTOR:	Technical University of Nova Scotia, Coal Research Laboratory, Depth of Chemical Engineering
CONTACT:	A.M. Al Taweel and J. Kwak
COST ESTIMATE, FUNDING:	$35 K
STATUS, TIMETABLE:	In progress
REPORTS (TITLES):	Available

130

Flotation column

Development of a high throughput multi-stage flotation column.

SPONSOR:	NSERC
CONTRACTOR:	Technical University of Nova Scotia, Coal Research laboratory, Dept. of Chemical Engineering
CONTACT:	A.M. Al Taweel, and V. Kasireddy
STATUS, TIMETABLE:	Construction

131

Innovative flotation for the beneficiation of eastern Canadian coal

04SQ23440-5-9227; 23440-5-9227/01-SQ

SPONSOR:	EMR, CANMET
CONTRACTOR:	Paul Shibley and Associates Ltd., Oshawa, Ontario

COST ESTIMATE, FUNDING: $58,680
STATUS, TIMETABLE: Awarded June '86

DRYING/DEWATERING

132

Properties of thermally dried coal (a multi-component project)

To demonstrate, at continuous flow mini-pilot plant scale, the fluid bed drying of coal to product moisture contents well below their equilibrium moisture level. To commission the Durham Cone Equipment for measuring the flow characteristics of coal and to establish a data bank with respect to western Canadian coals at various product moisture levels. Bench scale determination of adsorption characteristics of thermally dried coals. To establish equipment and methodology for a coal dustiness test.

SPONSOR:	AOCRT (A/CERRF)
CONTRACTOR:	Coal Mining Research Company
CONTACT:	M.A. Rashid/R.J. Germain
COST ESTIMATE, FUNDING:	$101,000 (FY 1985-6)
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	5 volume final report (confidential in draft with AOCRT)
	Thermal Drying Pilot Units - Operating Instructions Manual
	Thermal Drying of Coal - Pilot plant drying test results
	Adsorption Characteristics of Dried Coal
	Coal Dustiness
	Coal Handleability

133

Fluid bed dryer development

Demonstrate, at a bench scale, the use of a fluid bed dryer to dry low rank coals.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	M. Rashid
STATUS, TIMETABLE:	Completed

134

Portable coal drying pilot plant

Do on-site drying tests using the portable coal drying pilot plant.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	S.G. Butcher
STATUS, TIMETABLE:	Completed

135

Determination of coal dryer design criteria

Develop a standard bench scale procedure for predicting the design criteria for coal dryers.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	M. Rashid
COST ESTIMATE, FUNDING:	$27 K
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	Drying Characteristics of Western Canadian Coals, M. Rashid and P. McIntosh

136

Adsorption characteristics of dried western Canadian coals

Determine the readsorption of moisture of thermally dried coals and evaluate additions to prevent readsorption.

SPONSOR:	A/CERRF
CONTRACTOR:	Coal Mining Research Company
CONTACT:	M. Rashid
COST ESTIMATE, FUNDING:	$44 K
STATUS, TIMETABLE:	Completed

137

Research fluid-bed dryer

Design, construction and installation of research fluid-bed dryer for CMRC pilot plant.

SPONSOR:	Coal Mining Research Company
CONTRACTOR:	Associated Mining Consultants Ltd.
CONTACT:	Alan L. Craven, P.Eng.
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	Not available

138

Properties of thermally dewatered lignite

Physical and chemical properties.

SPONSOR:	EMR
CONTRACTOR:	University of Regina, Regina, Saskatchewan
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	Various thesis

139

Moisture resorption characteristics of thermally dried coal

SPONSOR: EMR
CONTRACTOR: Coal Mining Research Company, Devon, Alberta
COST ESTIMATE, FUNDING: $28,940

COAL WASHERY OPTIMIZATION/PRODUCTS

140

Washery optimization

To select and become proficient in using an appropriate testing procedure for multiple unit fine coal cleaning processes, and to demonstrate its use by evaluating cyclones and spirals for fine coal cleaning.

SPONSOR: AOCRT
CONTRACTOR: Coal Mining Research Company
CONTACT: S.G. Butcher
COST ESTIMATE, FUNDING $150,000 + over two years
STATUS, TIMETABLE: New project 1986

141

Water analysis of coal washery products

SPONSOR: EMR
CONTRACTOR: IEC Beak Consultants Ltd., Calgary, Alberta
COST ESTIMATE, FUNDING: $20,000

142

Water analysis of coal washery products

SPONSOR: EMR
CONTRACTOR: Enviro-Test Laboratories, Edmonton, Alberta
COST ESTIMATE, FUNDING: $100,000

143

Coal sample analysis of washery products

SPONSOR: EMR
CONTRACTOR: Loring Laboratories Ltd., Calgary, Alberta
COST ESTIMATE, FUNDING: $20,000

144

Coal sample analysis of washery products

SPONSOR: EMR
CONTRACTOR: Loring Laboratories Ltd., Calgary, Alberta
COST ESTIMATE, FUNDING: $90,000

145

Coal comminution

To determine how clay may be released from western Canadian coal particles thereby improving its cleanability. Select and test two non-conventional methods of comminution.

SPONSOR: AOCRT
CONTRACTOR: Coal Mining Research Company
CONTACT: S.G. Butcher
COST ESTIMATE, FUNDING: $55,000
STATUS, TIMETABLE: New project 1986

146

Canadian magnetite used in coal medium processes

Characterization of Canadian magnetite resources for optimum utilization in coal medium processes.

SPONSOR: EMR

CONTRACTOR: Kilborn Engineering (B.C.) Ltd. Vancouver, B.C.

COST ESTIMATE, FUNDING: $70,000

DESULPHURIZATION

147

Evaluation of Alberta's Coals for activated carbon production

Study of the kinetics of coke desulphurization. Flotation studies of waste tailings from Syncrude and Suncor.

SPONSOR: NSERC
CONTRACTOR: University of Calgary, Calgary, Alberta
CONTACT: E.L. Tollefson
COST ESTIMATE, FUNDING: $36,400
STATUS, TIMETABLE: 1986 completion

148

Environmental impacts of FGD waste waters

The most likely FGD process to be used by a Canadian electric utility is the limestone slurry process. There is a need to characterize the resulting process wastewaters/leachate, with respect to environmental effects. A literature review will examine the possible influence of fuel analysis, FGD process variation, receiving water, waste disposal area characteristics, climate. Environmental regulations and guidelines from Canada, USA, Germany and Japan will be reviewed in terms of rationale for control standards.

SPONSOR: Canadian Electrical Association,
Advisory Panel, Flue Gas Desulphurization
CONTRACTOR: Ontario Hydro
COST ESTIMATE, FUNDING: $40 K
STATUS, TIMETABLE: February 1986

149

Dry/wet - FGD evaluation of flyash from Canadian GS

Flyash from representative 8 generating stations across Canada will be characterized for their performance to reduce the need for lime in FGD

systems. The 3 most promising will be tested at a FGD pilot plant at the University of Tennessee. An economic analysis for these three GS, fitted FGD system, will be drawn up.

SPONSOR: Canadian Electrical Association,
CONTRACTOR: FLAKT Canada Ltd.
COST ESTIMATE, FUNDING: $67,500
STATUS, TIMETABLE: February 1986

150

High sulphur coals

Develop and demonstrate improved technology for the economic upgrading of high sulphur coals to meet stringent environmental controls for combustion and conversion.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
CONTACT: N.E. Anderson
COST ESTIMATE, FUNDING: $300 K
STATUS, TIMETABLE: 1991 completion

151

Selective biodepression of coal-pyrite

Selective depression of coal pyrite from coal in flotation desulphurization of high sulphur coal.

SPONSOR: EMR
CONTRACTOR: British Columbia Research Council, Vancouver, B.C.
COST ESTIMATE, FUNDING: $49,904

152

Bacterial leaching

Desulphurization of Sydney Coal by bacterial leaching

SPONSOR: EMR

CONTRACTOR: Atlantic Coal Institute, Sydney, N.S.

COST ESTIMATE, FUNDING: $15,000

COMBUSTION

GENERAL

153

Chatham Combustion Research Facility

A 1 million BTU/hr combustion research facility was constructed at New Brunswick Electric Power Commission Chatham research facility in 1986. The facility was design to study the combustion of various fossil fuels (coal, oil, coal/oil shale and coal liquid mixtures).

SPONSOR:	EMR, Coal Division
CONTRACTOR:	New Brunswick Electric Power Commission (NBEPC)
CONTACT:	R. Pierynoski, NBEPC, 515 King St., Fredericton, N.B.
COST ESTIMATE, FUNDING:	$1 million
STATUS, TIMETABLE:	Commissioning was completed March 1986
REPORTS (TITLES):	Brochure in preparation

154

Mineral matter spatial distribution in coal

Mineral matter spatial distribution in coal as related to the suitability of micronizing techniques in coal combustion.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING:	$19,995
STATUS, TIMETABLE:	Completed, 1986
REPORTS (TITLES):	Determination of the mineralogical and elemental composition of airborne aust from underground coal mines. Available from CANMET (OSQ 84-00240) and from Micromedia Ltd.

155

Comprehensive studies of coal mineral matter behaviour during combustion

The objective is to relate ash deposition on heat exchanger surfaces in pulverized coal combustion to properties of the feed coal. This problem has three major components: (1) relate the size and composition distribution of product fly ash to pulverized coal particle properties and burning characteristics (2) determine which chemical reactions among fly ash vapour phase constituents are responsible for the presence of liquid or sticky phases on ash particles and deposits; and (3) relate the rate of growth and properties of deposits to heat exchanger configuration, ash particle size and density, gas velocity and temperature, and physical state of particle and deposit surfaces.

SPONSOR:	Canadian Electrical Association
CONTACT:	E. Kingsley
CONTRACTOR:	MIT Energy Laboratory
COST ESTIMATE, FUNDING:	$70 K
	$275,000 is to be contributed by cofunders.
STATUS, TIMETABLE:	December, 1986

156

Sintering characteristics of coal ashes

Design construction and commissioning of a laboratory-scale apparatus to determine the sintering characteristics of coal ashes by simultaneous dilatometry-electrical conductance measurements. (OSQ 85-00258)

SPONSOR:	EMR
CONTRACTOR:	PTL Research Ltd., Oromocto, N.B.
COST ESTIMATE, FUNDING:	$89,642

157

Sintering characteristics of coal ashes

Design and construction and commissioning of an apparatus for determination of sintering characteristics of coal ashes.

SPONSOR: EMR, CANMET
CONTRACTOR: PTL Research Ltd.
CONTACT: K. Thambimuthu
COST ESTIMATE, FUNDING: $901 K
STATUS, TIMETABLE: In progress / 1986 completion

158

Compare the abrasiveness of various thermal coal ashes

Abrasion damage to utility boiler surfaces by coal ash is an important issue for plant design and management. No method exists to predict abrasion which is a complex function of many variables including the type of coal burned. An attempt to compare the abrasiveness of different thermal coal ashes is being made by jetting laboratory prepared samples of ash against a steel plate and measuring the weight loss of the steel.

SPONSOR: Suncor Inc.
CONTRACTOR: Hazen Research
CONTACT: P. Tucker (Suncor Inc. Pictou County Coal Project New Glasgow, N.S.)
COST ESTIMATE, FUNDING: $10,000
STATUS, TIMETABLE: Ongoing
REPORTS (TITLES): A technical note on the procedure may be published if the technique is successful

159

Corrosion fatigue cracking in fossil fired boilers

The objective is to gain a better understanding of crack initiation mechanisms in terms of operational parameters, with a view to suggesting modified procedures designed to minimize corrosion-fatigue damage in fossil fuel fired boilers. The work is divided into two separate research areas: (1) crack initiation; and (2) crack growth. Particular emphasis is placed on mechanical properties and behaviour of magnetite scale, assuming that disruption of the latter constitutes crack initiation. Concerning crack growth, effects of water chemistry are being reviewed, particularly the effects of oxygen. Effects of temperature and pressure will be reviewed in order to indicate the possible extent of the difference in crack growth behaviour between PWR and fossil boiler environmental conditions. Crack initiation will be investigated using low-cycle fatigue tests on smooth bar specimens whilst growth tests will use the fracture mechanics approach with compact tension specimens. In each case, provision of a realistic boiler water environment will be of prime importance.

SPONSOR:	Canadian Electrical Association, Ontario Hydro
CONTRACTOR:	Ontario Hydro
COST ESTIMATE, FUNDING:	$130 K
STATUS, TIMETABLE:	Feb. 1986

160

Pilot scale testing of catalytic combustion additives for improved boiler efficiency

Determining the effectiveness of a catalytic additive for improved overall efficiency in a boiler.

SPONSOR:	Ontario Hydro
CONTRACTOR:	Carvern Petro-chemical Co. Ltd.
CONTACT:	M. Mozes, R. Mangal

COST ESTIMATE, FUNDING: $25 K
STATUS, TIMETABLE: May 1986
REPORTS (TITLES): Available July 1986

161

Staged combustion parameters for Atlantic coals

SPONSOR: EMR, CANMET
CONTRACTOR: New Brunswick Electric Power Commission
Fredericton, N.B.
COST ESTIMATE, FUNDING: $188 K

162

Prediction of flow and temperature conditions in the CCRL drop furnace

SPONSOR: EMR, CANMET
CONTRACTOR: University of Ottawa
COST ESTIMATE, FUNDING: $38.9 K
STATUS, TIMETABLE: Completed 1985
REPORTS (TITLES): A study of flow and particle heating in a drop tube furnace: users guide and final report. Available from CANMET (ISQ-00105) and Micromedia Ltd., Order no. 86-4143

163

Performance prediction of CCRL tunnel furnace for coal combustion

SPONSOR: EMR, CANMET
CONTRACTOR: Imperial College of Science and Technology
COST ESTIMATE, FUNDING: $59.7 K
STATUS, TIMETABLE: Completed 1986

164

IEA Coal combustion science, Annex II

SPONSOR: EMR, CANMET
CONTRACTOR: ECN, Holland
COST ESTIMATE, FUNDING: $600 K
STATUS, TIMETABLE: In progress 1986

165

Combustability evaluation of beneficiated western Canadian coal samples

The combustion performance pollutant emissions, ash resistivity, slagging and fouling tendency of a few beneficiated coal samples will be conducted at Ontario Hydro's combustion research facility.

SPONSOR: Alberta Energy and Natural Resources
CONTRACTOR: Ontario Hydro
CONTACT: M. Mozes and R. Mangal
COST ESTIMATE, FUNDING: $33 K
STATUS, TIMETABLE: May 1986
REPORTS (TITLES): Available July 1986

166

Bituminous coal for electrical generation

The evaluate the combustion properties of bituminous coals for electricity generation. To participate in IEA coal combustion sciences Annex II, basic coal combustion research program.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
CONTACT: H. Whaley
COST ESTIMATE, FUNDING: $260 K
STATUS, TIMETABLE: 1991 completion

167

Combustion of anthracite

Evaluation of combustion options for anthracite utilization.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Gulf Canada Ltd., Sheridan Park, Ont.
CONTACT:	J. Wong, Gulf Canada Ltd.
COST ESTIMATE, FUNDING:	$24,710
STATUS, TIMETABLE:	Completed 1986

168

Bench scale evaluation of anthracite thermal coal mixtures for a pulverized firing system

SPONSOR:	EMR, CANMET
CONTRACTOR:	Gulf Canada Corporation, Sheridan Park, Ont.
COST ESTIMATE, FUNDING:	$54,692
STATUS, TIMETABLE:	Awarded August 1986

169

Low grade coal for electricity generation

Evaluate the combustion performance of plain coals for electricity generation and participate in IEA Coal Combustion Sciences Agreement and relevant annexes.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Inhouse
CONTACT:	H. Whaley
COST ESTIMATE, FUNDING:	$20 K
STATUS, TIMETABLE:	1991 completion

170

Impact of coal properties on economics of power generation

Development of a computer-based techno-economic model for predicting the impact of coal quality on the transportation, combustion and environmental costs associated with coal utilization.

SPONSOR:	NSERC
CONTRACTOR:	Technical University of Nova Scotia, Coal Research Laboratory, Dept. of Chemical Engineering
CONTACT:	A.M. Al Taweel and I. Ugursal
STATUS, TIMETABLE:	Partially completed
REPORTS (TITLES):	Available

POLLUTION ABATEMENT

171

Utility boiler evaluation and conversion

Assess advanced low No_x/SO_x technology concepts for coal combustion. Participate in joint R&D projects with Canadian industry.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Inhouse
COST ESTIMATE, FUNDING:	$90 K
STATUS, TIMETABLE:	1991 completion

172

Demonstration for in-furnace reductions of No_x/SO_x in tangential-fired boilers

SPONSOR:	EMR, CANMET
CONTACT:	G.K. Lee
CONTRACTOR:	Canadian Electrical Association, Montreal, Quebec
COST ESTIMATE, FUNDING:	$413 K
STATUS, TIMETABLE:	In progress

173

Pilot scale development of limestone injectionpProcess

Limestone injection injection process is being studied at Ontario Hydro's 620 MJ/h combustion research facility. The program is aimed at improving sulphur capture, sorbent utilization and minimizing the impact of the process on particulate removal.

SPONSOR: Canadian Electrical Association
CONTRACTOR: Ontario Hydro
CONTACT: M.S. Mozes and R. Mangal
COST ESTIMATE, FUNDING: $230 K

174

Pilot scale development of limestone injection process
Phase I: Applicability to Lakeview TGS

Various combinations of design and operating conditions affecting SO_x and particulate removal have been evaluated and optimized while burning a 1.7% S eastern U.S. bituminous coal under conditions simulating Lakeview TGS.

SPONSOR: Canadian Electrical Association
CONTRACTOR: Ontario Hydro
CONTACT: M.S. Mozes and R. Mangal
STATUS, TIMETABLE: Complete
REPORTS (TITLES): OHRD Report No. 86-62-k March 1986

175

Pilot scale development of limestone injection process
Phase II: Applicability to Lambton TGS

Optimizing process variables for max sulphur capture and sorbent utilization for Lambton TGS quenching rates. Comparing the performance of limestone, hydrated and pressured hydrated lime under

optimized operating conditions. Testing moisture conditioning as a means of improving ESP performance sulphur capture and sorbent utilization.

SPONSOR: Ontario Hydro
CONTACT: M.S. Mozes and R. Mangal
COST ESTIMATE, FUNDING: $60 K
STATUS, TIMETABLE: Study complete, data being analyzed

176

Pilot scale development of limestone injection process
Phase III: Improving process performance

Evaluating the performance of more reactive sorbents and sorbent-additive mixtures. Optimizing moisture conditioning as a means of activating limestone or lime-injection wastes for improved SO_2 capture and sorbent utilization. Study the simultaneous injection of fuel and limestone to control both SO_2 and NO_x.

SPONSOR: Canadian Electrical Association
CONTRACTOR: Ontario Hydro
CONTACT: M.S. Mozes and R. Mangal
COST ESTIMATE, FUNDING: $200 K
STATUS, TIMETABLE: July 1986 to July 1987

177

Research in the field of environmentally favourable coal combustion

Basic and applied research will be conducted at IFRF facilities on aspects of coal combustion. Five principle areas will be investigated: NO_x formation and possibilities of reduction through staged combustion; SO_x formation and possibilities of reduction through direct sorbent injection; characterization of combustion particularities of various types of coal transformation of mineral matter during combustion, in relation to slagging, fouling and fly ash emission; swirl burner aerodynamics.

SPONSOR:	Canadian Electrical Association IEA, CANMET, Alta Office of Research and Technology
CONTRACTOR:	IFRF, Holland
COST ESTIMATE, FUNDING:	CEA: $150,000 Cofunders: $3,450,000
STATUS, TIMETABLE:	Dec. 1988 completion

178

Rockwell low NO_x/SO_2 combustion project

Development of a slagging type burner to simulateously reduce airborne emmission of NO_x and SO_2 for new and retrofit applications in the power utility industry.

SPONSOR:	Transalta Consortium (includes EMR, CEA)
CONTRACTOR:	Transalta Utilities
CONTACT:	E.J. Barry, V.P. Planning, Transalta Utilities Corp. Box 1900, Calgary, Alta., T2P 2M1
COST ESTIMATE, FUNDING:	$10 Million
STATUS, TIMETABLE:	Pilot scale testing in U.S. is complete. Larger scale demonstration on 60 MW utility boiler scheduled for 1986-87 at Transalta's Wabamum plant
REPORTS (TITLES):	Several papers can be obtained from Rockwell International Inc., Kenoga Park, Cal. USA, Attn: A. Dykema (Test reports are confidential to participants).

179

IEA low NO_x/SO_2 burner development program

In 1980 Canada, Denmark, Sweden and the United States signed an agreement to do basic research on developing a burner that would produce low nitrogen oxides under staged combustion conditions. Concurrent with low NO_x development, the injection of sorbent

materials (limestone, lime) into the furnace was also studied to reduce SO_2 emmissions. There were three phases to the program: Phase I: coal screening; Phase II: large scale coal testing, and Phase III: Boiler demonstrations of low NO_x burner and sorbent injection technology.

SPONSOR:	Canada, Sweden, Denmark
CONTRACTOR:	Elkraft, Denmark
CONTACT:	Eric Rosenberg, Manager, Engineering Research Section Elkraft Power Company Ltd. 5 Lautruphoj DK 2750 Ballerup, Denmark
COST ESTIMATE, FUNDING:	$500,000
STATUS, TIMETABLE:	Phases I and II completed and reports available. Phase III to start April 1996 through 1988 scheduled for 1986-87 at Transalta's Wabanum plant
REPORTS (TITLES):	(1) NO_x Formation from different coal types in a bench-scale reactor under excess air and staged combustion conditions (2) Evaluation of non-U.S. coals emmission performance with the distributed mixing burner.

BURNERS AND NOZZLES

180

Retrofit burners

To monitor performance testing for low nitrogen and sulphur oxides retrofit burners at Canadian Forces Base, Gagetown, New Brunswick.

SPONSOR:	EMR, CANMET
CONTACT:	G.K. Lee
CONTRACTOR:	G.A. Robb Associates
COST ESTIMATE, FUNDING:	$40 K
STATUS, TIMETABLE:	Completed 1986
REPORTS (TITLES):	CFB Gagetown Low NO_x/SO_x Program. Available from CANMET (OSQ83-00128) and Micromedia Ltd.

181

Noval burner control technology

Optimize burner aerodynamics for emmission control and evaluate slagging burner concepts for inhibition of NO_x/SO_x.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: G.K. Lee
COST ESTIMATE, FUNDING: $85
STATUS, TIMETABLE: 1990 completion

182

Demonstration for in-furnace reductions of SO_x and NO_x in tangential-fired boilers

(ISQ85-00250)

SPONSOR: EMR
CONTRACTOR: Canadian Electrical Association, Montreal, Quebec
COST ESTIMATE, FUNDING: $413,270

183

Gagetown low NO_x/SO_x coal burner

Evaluate and demonstrate the effectiveness of staged combustion with sorbent injection for NO_x/SO_x reduction.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: G.K. Lee
COST ESTIMATE, FUNDING: $70 K
STATUS, TIMETABLE: 1988 completion

184

Ceramic nozzles

Testing ceramic nozzles at Chatham, N.B. generating station.

SPONSOR: EMR, CANMET
CONTRACTOR: National Research Council Canada
COST ESTIMATE, FUNDING: $30 K
STATUS, TIMETABLE: Completed/1986

FLAME CHARACTERISTICS

185

Flame diagnostics

To develop non-intrusive flame probing techniques for industrial fuels;. To participate in IEA Coal Sciences Annex I Collaborative Agreement, project information exchange.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
COST ESTIMATE, FUNDING: $90 K
STATUS, TIMETABLE: 1991 completion

186

Flame radiation

Characterize heat transfer properties of pulverized coal flames, participate in IEA coal combustion sciences Annex I collaborative Agreement, project information exchange.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: H. Whaley
COST ESTIMATE, FUNDING: $110 K
STATUS, TIMETABLE: 1991 completion

187

Flame scanners for coal fire monitoring

The objectives were to: (1) review operation experiences with coal flame monitoring systems currently in use; (2) assess any safety aspects pertaining to unreliable flame monitoring and burner discrimination at various loads; (3) examine the effects of coal quality, combustion air flows, NO_x control, and burner types on the intensity and shape of the flame and to document the influence of these on flame monitoring; and (4) research alternative detection methods that could be applied to a flame monitoring system or systems application to corner, front wall, and opposed wall fired boilers.

SPONSOR:	Canadian Electrical Association
CONTRACTOR:	Saskatchewan Power Corporation
CONTACT:	A.E. Kingsley
COST ESTIMATE, FUNDING:	$550 K
STATUS, TIMETABLE:	January, 1886
REPORTS (TITLES):	"Flame Scanners for Coal Fire Monitoring" CEA Project No. 104G300, January 1985, prepared by Saskatchewan Power Corporation, Montreal Engineering Co. Ltd. for CEA

188

Reactivity furnace development

Design and construct a small-scale furnace for studying pulverized coal flame reactions.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Inhouse
CONTACT:	H. Whaley
COST ESTIMATE, FUNDING:	$90 K

189

Optimal design of Stirling cycle systems

SPONSOR: NSERC
CONTRACTOR: University of Calgary, Calgary, Alberta
CONTACT: G. Walker
COST ESTIMATE, FUNDING: $33,167
STATUS, TIMETABLE: 1986

190

Integrated boiler cleaniness monitor

The wall ash monitoring system will be the basic component of a new automatic wall, superheater and reheater ash monitoring program, with an array of pyrometers, thermocouples and heat flux sensors to measure the cleaniness and heat flux of each convection section and detect the onset of fouling of a section of a boiler. This system will allow, for the first time, a complete direct measurement of the internal heat transfer behaviour and the fouling dynamics of the coal-fired furnace. If the project is successful, it will be possible to retrofit many other existing boilers as well as to include the system in the total design of new boilers. The benefits to the economics of the Canadian energy industry as well as Canada as a whole will be very large. Western lignite is likely, in the future, to be more widely used than at present. The project involves the instrumentation and analysis of a very difficult coal-fired furnace at Boundary Dam, Saskatchewan. This is a heavily fouling furnace which will prove a real test of the new technology developed by the University of Waterloo Centre for Process Development. After installation, experiments will be done to analyze and develop strategies for soot blowing based on the optimal distribution of heat within the furnace. These strategies will enhance reliable information.

SPONSOR: Canadian Electrical Association
CONTACT: A.E. Kingsley

CONTRACTOR: Saskatchewan Power Corporation,
Waterloo Centre for Process Development

COST ESTIMATE, FUNDING: $213 K

STATUS, TIMETABLE: 1985

COAL-LIQUID MIXTURES

191

Coal Liquid Mixture Demonstration

Provide technology direction to potential industrial and utility applications for CLM fuels.

SPONSOR: EMR, CANMET

CONTRACTOR: Inhouse

CONTACT: H. Whaley

COST ESTIMATE, FUNDING: $10 K

STATUS, TIMETABLE: 1991 completion

192

Coal liquid mixture combustion

Develop through inhouse research and contracts, the combustion technology to utilize coal liquid mixture fuels (CLM) in utility and industrial process combustors. Participation in the IEA CLM co-operative agreement and relevant annexes.

SPONSOR: EMR, CANMET

CONTRACTOR: Inhouse

CONTACT: H. Whaley

COST ESTIMATE, FUNDING: $160 K

STATUS, TIMETABLE: 1991 completion

193

"Densecoal" coal-water slurry evaluation

Under Canada/FRG science & technology agreement 60 barrels of a coal-water slurry were prepared at Salzgitter, W. Germany from a western Canadian bituminous coal. Mixture was tested for combustion characteristics.

SPONSOR:	EMR, Coal Division
CONTACT:	W. Warfe, EMR, Coal Division, Ottawa, Ontario K1A 0E4
CONTRACTOR:	Salzgitter
COST ESTIMATE, FUNDING:	$20,000
STATUS, TIMETABLE:	Report is completed but confidential to participants
REPORTS (TITLES):	Report to Coal Slurry Working Group on Densecoal Slurry Systems, by W. Wiedenroth, FRG, W. Warfe, Canada

194

Combustion tests of dense coal CWF in a small tunnel furnace

SPONSOR:	EMR, CANMET
CONTRACTOR:	Technical University of Nova Scotia
CONTACT:	K. Thambimuthu
COST ESTIMATE, FUNDING:	$41.6 K
STATUS, TIMETABLE:	In progress/1986 completion

195

CWF in oil-designed boiler demonstration

Assessment of performance and environmental controls on a 20 MWE oil-designed boiler burning coal-water fuel.

SPONSOR:	EMR, Coal Division, Mineral Policy Sector
CONTRACTOR:	N.B. Power; Cape Breton Development Corp. (CBDC) Maritime Electric Co. Ltd.

CONTACT:	EMR, Phil Read; N.B. Power, David Rankin, MECL, Jack Boomhower; CBDC, Adrian White
COST ESTIMATE, FUNDING:	$8.8 Million
STATUS, TIMETABLE:	1985/86
REPORTS (TITLES):	Preliminary results reported in 'Coal-water Fuel test at MECL's Charlottetown Plant' by Rankin, Read and Whaley, given at 13th Energy Technology Conference, Washington, D.C. March 17-19, 1986

196

Chatham CSF demonstration

Demonstration of coal-water fuel preparation, transportation, handling and combustion. Included a 100 tonnes/day preparation plant at Cape Breton Development Co., Sydney, N.S.; rail transportation 700 km; combustion at New Brunswick Power Corp, test facility, Chatham, N.B., using both a 12.5 MWE and a 20 MWE coal-designed boiler.

SPONSOR:	EMR, Coal Division
CONTACT:	Phil Read, Coal Division, EMR
CONTRACTOR:	N.B. Power; Cape Breton Development Corp.
COST ESTIMATE, FUNDING:	$7.15 Million
STATUS, TIMETABLE:	1982/85
REPORTS (TITLES):	'Coal-water Fuel (Feb. 1985) published by N.B. Power; Approx. 40 publications, summarized in ASME 85-JPGC-Fu-4 Coal-water Fuel, Rankin, Read & Whaley

197

Combustion and performance testing of coal/water fuel at the Chatham, N.B. generating station

SPONSOR:	EMR, CANMET
CONTRACTOR:	New Brunswick Electric Power Commission
CONTACT:	H. Whaley

COST ESTIMATE, FUNDING: $200 K
STATUS, TIMETABLE: Completed 1986

198

Industrial scale testing of coal/water slurries in Canada Cement Lafarge's Richmond wet process cement kiln

SPONSOR: EMR, CANMET
CONTACT: H. Whaley
CONTRACTOR: Canada Cement Lafarge Ltd.
COST ESTIMATE, FUNDING: $350 K
STATUS, TIMETABLE: In progress 1986

199

Coal water mixture study

Evaluation and testing of Westar coal to determine its suitability for coal water mixture combustion.

SPONSOR: EMR, CANMET
CONTRACTOR: Westar Mining Ltd.
CONTACT: David M. Parkes
COST ESTIMATE, FUNDING: Total $38,000. (75% CANMET, 25% Westar Mining)
STATUS, TIMETABLE: Completed
REPORTS (TITLES): Final Report "EValuation and Testing of Westar Mining Ltd.'s Coal to Determine its Suitability for Coal Water Mixture Combustion" August 1985

200

Coal water fuel conversion and combustion testing in an industrial iron ore pelletizing furnace

SPONSOR:	EMR, CANMET
CONTRACTOR:	Iron Ore Company of Canada, Sept Iles, Quebec
CONTACT:	K. Thambimuthu
COST ESTIMATE, FUNDING:	$300,000
STATUS, TIMETABLE:	In progress/1986

201

Assessment of coal-water fuel boiler derating

Coal-water fuel derating assessment for the front wall-fired oil design boiler no. 10 Maritime Electric Company, Charlottetown, Prince Edward Island.

SPONSOR:	EMR, CANMET
CONTACT:	H. Whaley
CONTRACTOR:	Babcock and Wilcox Canada, Cambridge, Ontario
COST ESTIMATE, FUNDING:	$37,172
STATUS, TIMETABLE:	Completed 1986

202

Coal-water fuel combustion in fluidized beds

Investigation of the fundamentals of coal water fuel in fluidized-bed combustion units.

SPONSOR:	National Research Council Canada
CONTRACTOR:	Technical University of Nova Scotia, Decal Research Laboratory, Dept. of Chemical Engineering
CONTACT:	G.S. Trivett, G.D.M. MacKay and A.M. Al Taweel

COST ESTIMATE, FUNDING: $30 K
STATUS, TIMETABLE: Phase I completed
REPORTS (TITLES): Available

203

An assessment of potential coal-water slurry atomizers and burners

SPONSOR: EMR, CANMET
CONTACT: H. Whaley
CONTRACTOR: Ralph Grossman Consultant
COST ESTIMATE, FUNDING: $62.8 K
STATUS, TIMETABLE: In progress/1986

204

CWF atomizer evaluation

Determination of interaction between CWF quality, atomizer configuration, and combustion efficiency.

SPONSOR: Canada-Nova Scotia Oil Substitution and Conservation Agreement
CONTRACTOR: Nova Scotia Research Foundation Corporation
CONTACT: Kelly Thambimuthu, CANMET, EMR
COST ESTIMATE, FUNDING: $300,000
STATUS, TIMETABLE: 1985-1987
REPORTS (TITLES): Work not complete

205

Ceramic coal-water fuel (CWF) atomizers

Combustion/testing of ceramic coal-water fuel (CWF) atomizers in unit No. 1, Chatham, N.B. Generating Station.

SPONSOR: EMR, CANMET
CONTRACTOR: New Brunswick Electric Power Commission
COST ESTIMATE, FUNDING: $492 K
STATUS, TIMETABLE: In progress/1986 completion

206

Four-ash tests

Assessment of coal-water fuel ash effects in oil-designed boilers.

SPONSOR: Canada/Nova Scotia Oil Substitution and Conservation Agreement
CONTRACTOR: Technical University of Nova Scotia (Centre for Energy Studies)
CONTACT: Phil Read, Coal Division, EMR
COST ESTIMATE, FUNDING: $500,000
STATUS, TIMETABLE: 1985-1986
REPORTS (TITLES): Due 1986

FLUIDIZED BED COMBUSTION

207

Develop a simulation model of the CFB Summerside fluidized bed combustor (FBC) steam heating plant

SPONSOR: EMR, CANMET
CONTRACTOR: Queen's University
COST ESTIMATE, FUNDING: $87.2 K
STATUS, TIMETABLE: Completed 1986

208

Atmospheric fluidized bed combustors

Perform a techno-economic analysis of small scale atmospheric fluidized bed combustors in industrial and commercial applications.

SPONSOR: EMR
CONTRACTOR: Sandwell and Company Ltd., Vancouver, B.C.
COST ESTIMATE, FUNDING: $95,500

209

Summerside FBC demonstration

Demonstrate the performance and fuel flexibility of FBC boilers in the heating plant of CFB, Summerside. Establish optimum ways to eliminate tube wastage by erosion/corrosion mechanisms.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: F.D. Friedrich
COST ESTIMATE, FUNDING: $15 K
STATUS, TIMETABLE: 1989 completion

210

Engineering evaluation of fluidized bed boiler demonstration at CFB Summerside, Prince Edward Island

SPONSOR: EMR
CONTRACTOR: Monenco Consultants Ltd., St. Catharines, Ont.
COST ESTIMATE, FUNDING: $72,722
STATUS, TIMETABLE: Engineering evaluation

211

Bubbling Bed Performance Parameters

Delineate parameters influencing the performance of Canadian coals and other solid fuels, and pitch residues from oil sands/heavy oil upgrading. Characterize the sulphur sorbent performance of Canadian limestones, and study the effects of fuel ash on sorbent performance. Advance the level of knowledge concerning fundamental mechanisms of FBC.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	F.D. Friedrich
COST ESTIMATE, FUNDING:	$140 K
STATUS, TIMETABLE:	1991 completion

212

Fluidized bed combustion

Program of pilot-scale R&D on bubbling-bed atmospheric fluidized bed combustion.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Queen's University, Kingston, Ontario
CONTACT:	Dr. H.A. Becker and Dr. R.K. Code, Dept of Chemical Engineering
COST ESTIMATE, FUNDING:	$420 000
STATUS, TIMETABLE:	In progress/1986 completion

213

AFBC demonstration

Two 18,000 kg steam per hour bubbling fluid-bed combustors installed at Canadian Forces Base, Summerside to use high sulphur coal with sulphur containment or wood chips.

SPONSOR:	EMR, CANMET
CONTACT:	Frank Friedrich, CANMET, EMR
CONTRACTOR:	Department of National Defence
COST ESTIMATE, FUNDING:	$13 million
STATUS, TIMETABLE:	1980-1986
REPORTS (TITLES):	Paper: Improving the Performance of FBC Boilers at Canadian Forces Base, Summerside, P.E.I. by V. Razbin, CANMET, April 1, 1986

214

Chatham coal/oil shale demonstration project

Provide scientific and technical support to the research programs for this circulating FBC project.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	F.D. Friedrich
COST ESTIMATE, FUNDING:	$40 K
STATUS, TIMETABLE:	1991 completion

215

Circulating bed combustion systems

Erect and commission a circulating FBC pilot plant at CANMET. Identify and accelerate potential applications for circulating FBC in industry and power generation.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: F.D. Friedrich
COST ESTIMATE, FUNDING: $540 K
STATUS, TIMETABLE: 1995 completion

216

Atmospheric recirculating fluidized bed combustion

Construction of a pilot scale atmospheric recirculating fluidized bed combustion system - phase III.

SPONSOR: EMR
CONTRACTOR: Integ Intercontinental Engineering Ltd. Vancouver, B.C.
COST ESTIMATE, FUNDING: $360,000

217

Heat transfer from circulating beds

SPONSOR: EMR, CANMET
CONTACT: E.J. Anthony
CONTRACTOR: University of British Columbia
COST ESTIMATE, FUNDING: Research Agreement $10 K

218

AFBC waste characteristics environmental impact, disposal recommendations and utilization potential

It appears that FBC waste disposal could be a major operating expense for utilities depending on the mode employed. The characteristics of FBC wastes are a function of many interacting variables.

Additionally, soil and groundwater characteristics will vary widely from location to location. Consequently, a generalized approach to waste disposal may not be appropriate as site specific properties may result in benign waste, or highly buffered soil and groundwater conditions. The project will use samples of Canadian coals, limestones and oil shales to generate circulating AFBC wastes of bed drain and carryover. These will be evaluated for their environmental impact, disposal requirements and utilization potential.

SPONSOR: Canadian Electrical Association
CONTACT: A.E. Kingsley
CONTRACTOR: Dearborn Environmental Consulting Services
COST ESTIMATE, FUNDING: $164 K
STATUS, TIMETABLE: Sept. 1986

219

Chatham coal/oil shale demonstration project on circulating fluidized bed combustion

Demonstrate at 22 MWe the combustion of coal/oil shale/limestone in a circulating fluidized bed (CFB) boiler, and the operation of the Chatham New Brunswick Electric Power Station as a national research centre for CFB. The primary objective of the Chatham CFB unit is to evaluate its technical and economic performance when burning high sulphur coal and other solid fuels such as, petroleum coke and coal rejects in an environmentally acceptable manner.

SPONSOR: Coal Division, EMR
New Brunswick Electric Power Commission
CONTACT: W. Warfe, Coal Division, EMR, Ottawa, Ontario K1A 0E4
CONTRACTOR: New Brunswick Electric Power Commission
COST ESTIMATE, FUNDING: $33 Million (FY 85/86 - 87/88)
STATUS, TIMETABLE: Demonstration program to commence September 1986

REPORTS (TITLES): 1) The Chatham station circulating fluidized bed boiler project: paper presented at 1987 Proceedings of the American Power Conference
2) Chatham circulating fluidized bed demonstration project brochure

220

Evaluation of corrosion of fluidized bed combustor heat transfer tubes

SPONSOR: EMR
CONTRACTOR: Ontario Research Foundation, Mississauga, Ontario
COST ESTIMATE, FUNDING: $155,090

221

Fluid bed combustion materials durability

Evaluation of susceptibility of in-bed materials to corrosion and erosion in fluid-bed combustion of high sulphur coal. Boiler tubes of different alloys, configurations were tested in a 1 square metre combustor for periods up to 10,000 hrs.

SPONSOR: EMR, Coal Division
CONTACT: Bill Warfe,
CONTRACTOR: Nova Scotia Power Corporation
COST ESTIMATE, FUNDING: $8 Million
STATUS, TIMETABLE: 1983-85; completed
REPORTS (TITLES): Report due in 1986

222

Gas sampling at Tupper AFBC facility

SPONSOR:	EMR, CANMET
CONTACT:	E.J. Anthony
CONTRACTOR:	University of New Brunswick
COST ESTIMATE, FUNDING:	$25.5 K
STATUS, TIMETABLE:	Completed 1985
REPORTS (TITLES):	Gas sampling at the Point Tupper AFBC facility. Available from CANMET (IST 95-00020) and Micromedia Ltd.

223

The electrolysis of coal slurries

SPONSOR:	ENR/A
CONTRACTOR:	University of Calgary, Calgary, Alberta
CONTACT:	U.I. Birss
COST ESTIMATE, FUNDING:	$51,500
STATUS, TIMETABLE:	1987

224

Chemical engineering, NRC

The application of Chemical Engineering principals to industrial problems and needs, with major emphasis on membrane separations and fine particle technology.

SPONSOR:	Many Industrial Interactions
CONTRACTOR:	National Research Council Canada
CONTACT:	C.E. Capes
STATUS, TIMETABLE:	Continuing
REPORTS (TITLES):	Some reports available

CONVERSION

CO-COMBUSTION

225

Co-combustion system

Process evaluation of an integrated retorting co-combustion system.

SPONSOR: EMR, CANMET
CONTACT: E. Furimsky
CONTRACTOR: Monenco Consultants Ltd.
COST ESTIMATE, FUNDING: $120 K
STATUS, TIMETABLE: In progress

226

Beneficiation of low rank Canadian coals with heavy residue - Phase II

Process evaluation of an integrated retorting co-combustion system.

SPONSOR: EMR, CANMET
CONTRACTOR: Gulf Canada Ltd.
CONTACT: D. Fung
COST ESTIMATE, FUNDING: $139.7 K
STATUS, TIMETABLE: Completed 1986
REPORTS (TITLES): Title as above. Available from CANMET (OSQ84-00097) and Micromedia Ltd., Micromedia Order no. 86-4392

COPROCESSING

227

Coal/oil coprocessing of Canadian feedstocks

A 22 day continuous operation in HRI's two-stage ebullated bed test unit to demonstrate coal/oil coprocessing of an Alberta subbituminous coal and a Cold Lake atmospheric residium. Evaluate the effects of coal concentration, recycle slurry, fresh feed rate, and process configuration.

SPONSOR:	CCLC Technologies Inc.
CONTRACTOR:	IRI Inc., (A subsidiary of Dynalectron Corporation)
CONTACT:	Mr. Abe Lincoln, Vice-President, Ontario - Ohio Synthetic Fuels Corp. Ltd.
COST ESTIMATE, FUNDING:	$350,000
STATUS, TIMETABLE:	Completed May 1985
REPORTS (TITLES):	Final report

228

Coal/heavy oil hydrogenation plans feasibility study

Evaluate the commercial potential of CCLC's integrated coal plus heavy oil/bitumen process. In this two-stage conversion process, heavy oil is stripped twice of light products (atmospheric tower-mild hydrogenation of residue - fractionation) before joining the coal train for a two-stage hydrogenation (solubilization - hydrogenation). Alberta subbituminous coal, heavy oil and natural gas (hydrogen) are converted into high quality transportation fuels.

SPONSOR:	Contar Systems Engineering Ltd. (now Canadian Coal Liquefaction Corporation), Alberta Energy and Natural Resources, Canadian Utilities, Luscar Ltd. Gesellschaft fur Kohleverflussigung mbh
CONTRACTOR:	Kilborn Kellogg Rust
COST ESTIMATE, FUNDING:	$450,000
REPORTS (TITLES):	Coal/Heavy Oil Hydrogenation Plant Feasibility Study Volume I: Technical Volume II: Cost Estimates and Financial Evaluation Volume III: Material Balance on Flow Sheets Volume IV: Process Specifications and Data Sheets

229

Heavy oil/coal slurry upgrading

Design, construction and operation of a pump and feeding system for a micro-scale continuous-flow heavy oil/coal slurry upgrading system.

SPONSOR: EMR
CONTRACTOR: Fluitron Incorporated, Toyland, Pennsylvania
COST ESTIMATE, FUNDING: $54,237

230

Coprocessing

Techno-economic study of CANMET coprocessing technology.

SPONSOR: EMR, CANMET
CONTRACTOR: Partec Lavalin Inc., Toronto, Ontario
COST ESTIMATE, FUNDING: $99,512

231

Evaluation of atmospheric flash pyrolysis for coprocessing residue

The project has two principal objectives, 1) evaluation of yields of pyrolysis liquids from a Saskatchewan lignite (Coronach deposit) in a 2 kg/h continuous fluid bed atmospheric pyrolysis unit. Raw and treated coals will be used, and the products characterized to determine the effect of process conditions and of pre-treatment on product quantity. 2) The yields and nature of products obtained from the atmospheric flash pyrolysis of coprocessing residues in a small bench scale unit will be determined.

SPONSOR: EMR, CANMET
CONTRACTOR: Waterloo Research Institute, University of Waterloo, Waterloo, Ontario
CONTACT: Dr. D.S. Scott, Dept. of Chemical Engineering
COST ESTIMATE, FUNDING: $113,674
STATUS, TIMETABLE: September 1986
REPORTS (TITLES): 1. Evaluation of the flash, liquefaction pyrolysis process applicable to Canadian coals. (OST 84-00007) Available from CANMET OST8400007 and Micromedia Ltd.

2. Liquids from flash pyrolysis of low rank Canadian coals, D.S. Scott, J. Piskovz and S. Fouda, Fuel Processing Technology, vol. 12

3. The pyrolysis of some Canadian Coals. D.S. Scott, J. Piskorz and S. Fouda; Proceedings, Coal Conversion Contractors Review Meeting, Nov. 14-16, Calgary, (1984)

232

Coprocessing, pilot-plant construction and operation

Design, construct and operate a bitumen/heavy oil and coal coprocessing pilot plant. Provide engineering and process data that will allow for better technical and economic evaluations of coprocessing and provide information for scale-up of the process to demonstration/commercial size.

SPONSOR:	EMR, CANMET
CONTRACTOR:	Inhouse
CONTACT:	J.F. Kelly
COST ESTIMATE, FUNDING:	$1254 K
STATUS, TIMETABLE:	1995 completion

233

Coprocessing research and development

Investigate the concept of simultaneously processing slurries of coal and bitumen or heavy oils at the bench-scale using batch and continuous flow equipment.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	J.F. Kelly
COST ESTIMATE, FUNDING:	$274 K
STATUS, TIMETABLE:	1993 completion

234

Pyrosol research program

Phase I - Demonstrate the pyrosol technology in the coprocessing mode in a 2 kg/hour bench unit, with Alberta subbituminous coal and heavy oil, obtain initial information on raw product quality, and establish design parameters for the design and initial operation of the following process development unit (PDU). Demonstrate the pyrosol process in near commercial scale equipment (1-3 ton/day PDU) for the simultaneous conversion of Alberta subbituminous coal and heavy oil to light distillate raw liquid products and demonstrate their upgradeability to high quality synthetic crude or premium distillate fuels. Stabilise parameters for a major feasibility study to verify the commercial potential of the technology.

SPONSOR:	Alberta Office of Coal Research and Technology CCLC Technologies Inc. Mr. Abe Liron, Vice President Research
CONTRACTOR:	CCLC Technologies Inc.
COST ESTIMATE, FUNDING:	$16 million over 5 years
STATUS, TIMETABLE:	Phase I - Bench Unit commissioned April 15

235

Coal/heavy oil pyrosol plant feasibility study

Evaluate the commercial potential of pyrosol in the coprocessing of coal and heavy oil/bitumen. In this two stage conversion process, heavy oil is tripped twice of light products (atmospheric tower-mild hydrogenation of residue-fractionation) before joining the coal train for a mild hydrogenation followed by hydrocracking (coking in a hydrogen atmosphere.

SPONSOR:	Contar Systems Engineering Ltd. (now CCLC Technologies Inc.)
CONTRACTOR:	Kilborn Kellogg Rust

CONTACT:	Mr. Abe Liron Vice-President, Development
COST ESTIMATE, FUNDING:	$140,000
STATUS, TIMETABLE:	Completed June 1985
REPORTS (TITLES):	Volume I: Technical
	Volume II: Cost Estimate and Financial Evaluation
	Volume III: Material balance and Flowsheets
	Volume IV: Process Specification and Data Sheets
	Volume V: Alternative case Studies

236

Disposable catalysts for hydroprocessing bitumen with coal

Develop inexpensive disposable catalysts or additives for the coprocessing of bitumen/heavy oil with coal. These catalysts are intended to enhance the solubilization and hydrogenation of bitumen/heavy oil and coal while favouring the removal of heteroatoms from the primary liquid products.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	J. Kriz
COST ESTIMATE, FUNDING:	$50 K
STATUS, TIMETABLE:	1988

237

The ultrapyrolysis of Alberta coal-heavy oil mixtures in a spout-fluid ned reactor

SPONSOR:	AEC
CONTRACTOR:	University of Calgary, Calgary, Alberta
CONTACT:	L.A. Behie, W.Y. Surcek
COST ESTIMATE, FUNDING:	$76,900
STATUS, TIMETABLE:	1987

238

Development of a method for upgrading particulate coal

(06SQ23440-6-9048; 23440-6-9078/01-SQ)

SPONSOR: EMR, CANMET
CONTRACTOR: Gulf Canada Corp., Mississauga, Ontario
COST ESTIMATE, FUNDING: $263,134
STATUS, TIMETABLE: Awarded August '86

LIQUEFACTION

239

A study of the liquefaction of Nova Scotia Coals - Phase VI

SPONSOR: EMR, CANMET
CONTACT: P. Rahimi
CONTRACTOR: Nova Scotia Research Foundation Corporation

STATUS, TIMETABLE: Completed
REPORTS (TITLES): Liquefaction of Nova Scotia coals: Phase VI. Available from CANMET (OSQ 84-00187) and Micromedia Ltd. Order No. 86-4149

240

Liquefaction studies of Nova Scotia Coals - Phase IV

(OSQ85-00249)

SPONSOR: EMR
CONTRACTOR: Nova Scotia Research Foundation Corporation
Dartmouth, N.S.
COST ESTIMATE, FUNDING: $249,458
STATUS, TIMETABLE: Awarded February 1986

241

Liquefaction of Nova Scotia Coals - Phase VII

SPONSOR: EMR, CANMET
CONTRACTOR: Nova Scotia Research Foundation, Dartmouth, N.S.
CONTACT: P. Rahimi
STATUS, TIMETABLE: In progress

242

Study of the liquefaction of Nova Scotia coals - Phase VIII

(06SQ23440-6-9046; 23440-6-9046/01-SQ)

SPONSOR: EMR, CANMET
CONTRACTOR: Nova Scotia Research Foundation, Dartmouth, N.S.
COST ESTIMATE, FUNDING: $249,936
STATUS, TIMETABLE: Awarded July 1986

243

Hat Creek coal liquefaction

To evaluate the potential for the liquefaction of Hat Creek coal subsequent to deashing using oil agglomeration techniques.

SPONSOR: B.C. Ministry of Energy, Mines and Petroleum Resources,
B.C. Hydro,
CANMET
CONTRACTOR: B.C. Research
CONTACT: W.M. Johnson
COST ESTIMATE, FUNDING: $50,000
STATUS, TIMETABLE: Complete by September 1986
REPORTS (TITLES): Not yet established

244

Agglomeration and liquefaction of Hat Creek coal

(06SQ23440-6-9101; 23440-6-9101/01-SQ)

SPONSOR: EMR, CANMET
CONTRACTOR: British Columbia Research Council, Vancouver, B.C.
COST ESTIMATE, FUNDING: $50,000
STATUS, TIMETABLE: Awarded September 1986

245

Continuation of the evaluation of Hat Creek coal for coal liquefaction

SPONSOR: EMR, CANMET
CONTACT: S. Fouda
CONTRACTOR: B.C. Research Council
COST ESTIMATE, FUNDING: $142.4 K
STATUS, TIMETABLE: Complete

246

Sandwell Centrax process

Evaluation of the Sandwell Centrax process for the separation of solids and recovery of liquid products from the different slurry samples.

SPONSOR: EMR, CANMET
CONTACT: S. Fouda
CONTRACTOR: Sandwell and Company Ltd.
COST ESTIMATE, FUNDING: $41.3 K
STATUS, TIMETABLE: Completed 1985

247

Sandwell Centrax process

Evaluation of the Integration of the Sandwell Centrax process into an integrated two-stage liquefaction process - Phase I

SPONSOR: EMR, CANMET
CONTRACTOR: Sandwell and Company Ltd.
CONTACT: S. Fouda
COST ESTIMATE, FUNDING: $148 K

248

Sandwell Centrax process

Evaluation of the integration of the Sandwell Centrax process into an integrated two-stage liquefaction process - Phase II

SPONSOR: EMR, CANMET
CONTRACTOR: Sandwell and Company Ltd. Mississauga, Ontario
COST ESTIMATE, FUNDING: $149 K

249

Critical evaluation of the hardware development for the Sandwell Centrax process

(OST85-00377)

SPONSOR: EMR, CANMET
CONTRACTOR: McMaster University, Hamilton, Ont.
Dr. J.H.T. Wade and Dr. R.L. Judd, Department of Mechanical Engineering
CONTACT: M.K. Ikura
COST ESTIMATE, FUNDING: $8,238
STATUS, TIMETABLE: Completed

250

Critical evaluation of the hardware development for the Sandwell Centrax process

SPONSOR: EMR

CONTRACTOR: McMaster University, Hamilton, Ont.
Dr. J.H.T. Wade and Dr. R.L. Judd, Department of Mechanical Engineering

COST ESTIMATE, FUNDING: $16,523

251

Evaluation of liquefaction potential of low rank coals and peats

Determine the composition of raw coals and their liquefaction residues to give insight into: 1) the efficiency of the liquefaction process in converting the coal; 2) behaviour of the different micro components of coal during liquefaction; 3) the relationship between liquefaction yields and the petrographic composition of feed coal; 4) the occurrance and behaviour of mineral components during liquefaction, and 5) the utilization of residues from liquefaction processes.

SPONSOR: EMR, GSC-ISPG

CONTACT: W. Kalkreuth

INDEX: low rank coals, peat, liquefaction

252

Two-stage liquefaction

Techno-economic comparison of the Sandwell Centrax solid-liquid separation process with the Keir McGee critical solvent deashing process as part of an integrated two-stage liquefaction process.

SPONSOR: EMR, CANMET

CONTRACTOR: The Mitre Corporation

CONTACT: J. Kelly, M. Ikura

COST ESTIMATE, FUNDING: $77 K
STATUS, TIMETABLE: In progress

253

Conversion of coal rejects to liquid fuels via indirect liquefaction

A study with Westar Mining Ltd. and Esso Resources Canada Limited; part of the energy, Mines and Resources 50/50 cost shared energy conversion program.

SPONSOR: EMR, CANMET
CONTRACTOR: Westar Mining Ltd./Esso Resources Canada Limited
CONTACT: David M. Parkes, Westar Mining Ltd.
COST ESTIMATE, FUNDING: $292,865.00 (50% CANMET, 25% Westar Mining, 25% Esso Resources)
STATUS, TIMETABLE: April 1984-March 1985 Completed
REPORTS (TITLES): Final report: Conversion of Coal Rejects to Liquid Fuels Via Indirect Liquefaction, May 1985
Available from CANMET (OSQ 84-00067) and Micromedia Ltd. Order no. 86-1161

254

Spherical agglomeration

Investigation of the use of spherical agglomeration in the beneficiation of low rank Canadian coals as an integral part of the direct liquefaction process.

SPONSOR: EMR, CANMET
CONTACT: M. Ikura
CONTRACTOR: SNC Inc.
COST ESTIMATE, FUNDING: $75.1
STATUS, TIMETABLE: Completed

255

Characterization of solid residue from coal liquefaction processes

SPONSOR: EMR, CANMET
CONTACT: W. Dawson
CONTRACTOR: University of Regina, Regina Saskatchewan, Professor B.D. Kybett, Dept. of Chem.
COST ESTIMATE, FUNDING: $96.6 K
STATUS, TIMETABLE: In progress 1986

256

Characterization of solid residues from coal liquefaction processes

Petrographic analysis.

SPONSOR: EMR
CONTRACTOR: University of Regina, Regina Saskatchewan, B. Kybett,
COST ESTIMATE, FUNDING: $96.612
STATUS, TIMETABLE: March 1986

GASIFICATION AND PYROLYSIS

257

Catalytic conversion of hydrocarbons and coal/char

Study the kinetics of various catalyzed reactions and develop catalysts that can be used in industrial processes for various reactions including gasification of coal/char. ESR study of he mixed oxides, free radicals in coal and thermal effect on electron (donating/accepting) properties on Na-Y zeolite.

SPONSOR: NSERC
CONTRACTOR: University of Ottawa, Ottawa, Ontario, R.R.S. Mann
COST ESTIMATE, FUNDING: $31 K/yr
STATUS, TIMETABLE: On-going

258

Hydropyrolysis of eastern Canadian coals

SPONSOR: EMR, CANMET
CONTACT: M. Ikura
CONTRACTOR: Ontario Research Foundation, Mississauga, Ontario
COST ESTIMATE, FUNDING: $96,900
STATUS, TIMETABLE: In progress

259

Gasification of anthracite

Gasification of canadian anthracite coal in a fluidized bed reactor.

SPONSOR: EMR, CANMET
CONTACT: D. Fung
CONTRACTOR: University of British Columbia, Vancouver, B.C.
Dr. A.P. Watkinson, Dept. of Chem
COST ESTIMATE, FUNDING: $27.1 K
STATUS, TIMETABLE: In progress

260

Liquid fuels from peat

Assessment of Waterloo flash pyrolysis process to obtain liquid fuels from Canadian peat.

SPONSOR: EMR
CONTRACTOR: University of Waterloo, Waterloo, Ontario
COST ESTIMATE, FUNDING: $80,850

261

Pyrolysis of New Brunswick oil shale and coal in a circulating fluidized bed

Production of liquid and gas hydrocarbon products is to be accomplished by alternating cycles of combustion and retorting in a circulating system.

SPONSOR:	EMR (CANMET), Province of New Brunswick
CONTACT:	A. Palmer
CONTRACTOR:	Research and Productivity Council, Fredericton, N.B. P. Salib
COST ESTIMATE, FUNDING:	$95,000 cost shared
STATUS, TIMETABLE:	September 1986

262

Gasification of non-reactive products

Design, construct and operate an entrained bed gasifier to study gasification reactivities of non-reactive feedstocks such as oil sand coke, coal rejects, pitches and other vacuum residues. Assess the potential of lignite ash as a low cost catalyst for gasification of non-reactive feedstocks.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	E. Furimsky
COST ESTIMATE, FUNDING:	$359 K
STATUS, TIMETABLE:	1989 completion

263

Gasification of coal rejects

Gasification reactivities of ultrasonically treated coal rejects.

SPONSOR: EMR, CANMET
CONTACT: B. Nandi
CONTRACTOR: Carleton University
COST ESTIMATE, FUNDING: $21.4 K
STATUS, TIMETABLE: Completed

264

Hot gas cleanup of gasification products

SPONSOR: EMR, CANMET
CONTACT: A. Palmer
CONTRACTOR: University of British Columbia, Vancouver, B.C.
Dr. A.P. Watkinson, Dept. of Chem.
COST ESTIMATE, FUNDING: $150.9
STATUS, TIMETABLE: In progress

265

Hot gas cleanup of gasification products

Develop a new process for removal of acidic compounds and solid particulates from gasification products at high temperatures. This would significantly improve the thermal efficiency and environmental attractiveness of the combined cycle power generation process.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: E. Furimsky
COST ESTIMATE, FUNDING: $204 K
STATUS, TIMETABLE: 1989 completion

266

Demonstration of an integrated oil shale retort system

Fluidized bed combustion of coal and spent shale was integrated with retorting of oil shale to yield liquid petroleum products.

SPONSOR:	EMR, CANMET/Province of New Brunswick
CONTRACTOR:	Research and Productivity Council, Fredericton, New Brunswick
CONTACT:	P. Salib
COST ESTIMATE, FUNDING:	$250,000
STATUS, TIMETABLE:	Completed 1984

267

Modification of the integrated oil shale retort system

The fluidized bed combustor for coal and spent shale and retort for oil shale has been rebuilt and tests conducted for combustion efficiency and oil recovery.

SPONSOR:	EMR, CANMET/Province of New Brunswick
CONTRACTOR:	Research and Productivity Council, Fredericton, New Brunswick
CONTACT:	P. Salib
COST ESTIMATE, FUNDING:	$75,000 cost shared
STATUS, TIMETABLE:	Completion 1986

CARBONIZATION

268

Cage tests

To carry out cage tests in the coke ovens at Algoma Steel Corporation Limited.

SPONSOR:	EMR, CANMET
CONTACT:	J. Gransden
CONTRACTOR:	Algoma Steel Corp. Ltd.
COST ESTIMATE, FUNDING:	$100 K
STATUS, TIMETABLE:	Completed 1986

269

Coking coal evaluation

Conduct evaluations of coking coals from new and existing Canadian mines.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	J.F. Gransden
COST ESTIMATE, FUNDING:	$60 K
STATUS, TIMETABLE:	1990 completion

270

Conventional cokemaking

Perform evaluations of coking coals and blends to serve the technological needs of the Canadian coal and steel industries.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	J.F. Gransden
COST ESTIMATE, FUNDING:	$110 K
STATUS, TIMETABLE:	1990 completion

271

Enhancement of coking properties

Elucidate mechanisms and techniques for upgrading the coking properties of non-coking coals, by chemical methods and blending.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: J.F. Gransden
COST ESTIMATE, FUNDING: $10 K
STATUS, TIMETABLE: 1988 completion

272

Influence of coal properties on carbonization

Improve coke quality by control of constituent coals and coal properties.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: J.F. Gransden
COST ESTIMATE, FUNDING: $30 K
STATUS, TIMETABLE: 1991 completion

273

Development of methods to predict coal quality

Develop methods for more rigorously relating western canadian coal properties to coke quality and for reproducing industrial oven performance in technical-scale ovens.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: J.F. Gransden
COST ESTIMATE, FUNDING: $70 K
STATUS, TIMETABLE: 1991 completion

274

Continuation de l'étude sur la nature de coke provenant des charbons rang peu élévé et des huiles lourdes

SPONSOR: CANMET, EMR
CONTACT: J.A. MacPhee
CONTRACTOR: Université de Sherbrooke
COST ESTIMATE, FUNDING: $83.2 K
STATUS, TIMETABLE: Completed

275

Potassium vapour impregnation of metallurgical cokes

The objective is to improve blast furnace coke quality by determining coke types or textures least susceptible to alkali attack. Specifically, to impregnate with potassium vapour several cokes made at CANMET from western Canadian and Appalachian binary coal blends. These cokes would have the same cold strength (ASTM stability), but different optical textures, ash, and inert contents. CANMET will use the impregnated cokes in modified CRS tests to determine the resistance of coke textures to alkali attack, reaction with CO_2 and coke degradation.

SPONSOR: CANMET, EMR
CONTACT: J. Price
CONTRACTOR: McMaster University, Hamilton, Ontario
Dr. W.K. Lu, Material Sciences and Engineering
COST ESTIMATE, FUNDING: $40,000
STATUS, TIMETABLE: July 1986 completion

PROPERTIES

276

Character of vitrinite reflectance

To investigate the occurence of non-uniaxial vitrinite reflectance indicatrixes in B.C. coals. Determine methodology for the investigation of all characteristics and study the implication to common coal and measurements and quality relationships.

SPONSOR: B.C.M.E.M.P.R.
CONTACT: W.E. Kilby
COST ESTIMATE, FUNDING: $5 K
STATUS, TIMETABLE: 1986 completion
REPORTS (TITLES): Fieldwork 1985-1, External Publication

277

Investigations concerning the optical properties of coals and dispersed organic materials

Provide information on metamorphism and petrographic properties of coals and dispersed organic matter for use in establishing metamorphic regimes, for correlation of coal beds and other rock units, and for estimating paleotemperatures and burial histories.

SPONSOR: EMR, GSC/ISPG
CONTACT: W.D. Kalkreuth
COST ESTIMATE, FUNDING: $4 K
STATUS, TIMETABLE: Continuing

278

Compositional characteristics of coals from Hat Creek, British Columbia

To determine the petrographic character of the coals of the Hat Creek deposit. To determine the suitability of vitrinite reflectance as a rank parameter in these low rank coals (lignite to subbituminous) and if suitable, to use this parameter as the basis of determination of

the relative timing of coalification and deformation. To examine the nature, vertical and lateral variation of associated clastocs in boreholes and to combine these data with those of the petrographic study and a literature survey to interpret the depositional and post depositional environment of the deposit.

SPONSOR: EMR, GSC-ISPG
CONTACT: F. Goodarzi

279

Petrographic analyses of coals in the Saunders Group, Outer Foothills Belt, Alberta

Determine petrographic character along with maceral and rank distributions of these coals, and attempt to relate variations with sedimentological factors established by others (T. Jerzykiewicz).

SPONSOR: EMR, GSC/ISPG
CONTACT: A.R. Cameron
COST ESTIMATE, FUNDING: $5 K
STATUS, TIMETABLE: Started 1983 / complete 1988

280

Petrographic studies of Ravenscrag coal deposits

Variation of coal quality with depositional environment. Petrographic nomenclature for low rank Canadian coals.

SPONSOR: Canada/Saskatchewan Fossil Fuels Program
CONTRACTOR: University of Regina, Regina Saskatchewan
CONTACT: J. Potter
STATUS, TIMETABLE: 1987

281

Organic petrography and thermal maturity of mezosaic rocks in southern Saskatchewan

SPONSOR: EMR
CONTRACTOR: University of Regina, Regina Saskatchewan
CONTACT: J. Potter
COST ESTIMATE, FUNDING: $20,000
STATUS, TIMETABLE: 1986

282

Relationship of reflectance to chemical rank parameters for western Canadian coals

Determine the relationships of both coal reflectance measurements and maceral compositions, with attributes determined by chemical analysis.

SPONSOR: EMR, GSC/ISPG
CONTACT: A.R. Cameron
STATUS, TIMETABLE: Complete 1987

283

Petrographic examination of coking coals from the Kootenay Group, Alberta and British Columbia

To determine the coking properties, and to prepare seam profiles for correlation and environment of deposition studies of coals of the Kootenay Group.

SPONSOR: EMR, GSC-ISPG
CONTACT: A.R. Cameron

284

Rank and petrographic studies of coal and organic matter dispersed as sediments

To obtain information on local and regional changes in organic metamorphism, with application towards economic geology, search for oil and gas, and evaluation of properties of coking coals.

SPONSOR: EMR, GSC-APG
CONTACT: P.A. Hacquebard

285

Petrographic analysis of Saskatchewan lignites

Petrographic characterization of Saskatchewan lignites. Determination of vertical and lateral changes in petrographic composition. Relation of petrographic composition to environment of deposition.

SPONSOR: EMR, GSC-ISPG
CONTACT: A.R. Cameron

286

Relationship of reflectance to chemical rank parameters of western Canadian coals

To establish reference curves relating rank as determined by reflectance to rank as determined by chemical means. To determine the relationship of varying maceral compositions on rank as determined chemically.

SPONSOR: EMR, GSC-ISPG
CONTACT: A.R. Cameron

287

Determination of reflectance of coal

(01SQ23294-6-640; 2394-6-0640/01-SG)

SPONSOR:	EMR
CONTRACTOR:	David E. Pearson and Associates Ltd., Vancouver, B.C.
COST ESTIMATE, FUNDING:	$68,000
STATUS, TIMETABLE:	Awarded September 1986

288

Scanning and transmission electron microscope studies of macerals and pore structures in coals of different rank

SPONSOR:	EMR, CANMET
CONTRACTOR:	Ontario Research Foundation
CONTACT:	K. Thambimuthu
COST ESTIMATE, FUNDING:	$45.4 K
STATUS, TIMETABLE:	Completed 1985
REPORTS:	Title as above (ISQ84-00112). Available from CANMET (ISO84-00112) and Micromedia Ltd. Order no. 86-3121

289

Coke-strength prediction

Development of a reflectogram-based coke-strength prediction technique applicable to western Canadian coking coals

SPONSOR:	EMR
CONTRACTOR:	David E. Pearson and Associates Ltd., Victoria, B.C.
COST ESTIMATE, FUNDING:	$46,890

290

Correlation of mineral, maceral and petrophysical characteristics of coal with beneficiation technology

SPONSOR: EMR
CONTRACTOR: Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING: $120,000

291

Coke texture and properties

SPONSOR: EMR, CANMET
CONTACT: J.T. Price
CONTRACTOR: University of British Columbia
COST ESTIMATE, FUNDING: Research agreement $ 12 K

292

Characteristization of coking coals

To use advanced techniques to physically and chemically characterize Canadian coals to aid their utilization in coke making.

SPONSOR: CANMET, EMR
CONTRACTOR: Inhouse
CONTACT: J.F. Gransden
COST ESTIMATE, FUNDING: $10 K
STATUS, TIMETABLE: 1990 completion

293

Detection/quantitation by photoacoustic FTIR spectroscopy of changes in oxygen functions of coals under mild thermolysis

SPONSOR: EMR, CANMET
CONTACT: J.A. MacPhee
CONTRACTOR: St. Francis Xavier University
COST ESTIMATE, FUNDING: Research agreement $10 K

294

Interpretation of analysis of minerals in coal

(07SQ23440-5-9024; 23440-5-9024/01-SG)

SPONSOR: EMR, CANMET
CONTRACTOR: D.E. Pearson and Associates Ltd., Victoria, B.C.
COST ESTIMATE, FUNDING: $22,000
STATUS, TIMETABLE: Awarded July 1986

295

Characterization of coals

Study of the characterization of coals using photoacoustic infrared Fournier transform spectroscopy and chemical transformations and derivatization.

SPONSOR: EMR
CONTRACTOR: St. Francis Xavier University, Nova Scotia
CONTACT: Dr. B.M. Lynch, Department of Chemistry
COST ESTIMATE, FUNDING: $62,532

296

Study of coal surfaces by SIMS

Ion microscope studies of the oxidation of coal on a microscope scale Phase III - Study of coal surfaces by SIMS.

SPONSOR:	EMR, CANMET
CONTACT:	J.A. MacPhee
CONTRACTOR:	University of Western Ontario
COST ESTIMATE, FUNDING:	$45.7 K
STATUS, TIMETABLE:	Completed 1985
REPORTS:	Characterization of clal surfaces by ion microscopy - Phase II. Available from CANMET (OST 83-00145) and Micromedia Ltd., order no. 86-1166

297

Coal analysis

Analytical program on eleven eastern Canadian coals - Phase II

SPONSOR:	EMR
CONTRACTOR:	Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING:	$49,991

298

Physical and chemical analysis

Regional individual standing offer for physical and chemical analysis of coal, coal ash and other fossil fuel residues according to ASTM procedures.

SPONSOR:	EMR
CONTACTOR:	Cyclone Engineering Sales Ltd.
COST ESTIMATE, FUNDING:	$20,000

299

Preparation of coal standards of low sulphur content

To prepare analytical standards for low sulphur content coals - range 0.1 to 0.5% - and make certified samples commerically available.

SPONSOR:	TransAlta Utilities Corporation
CONTACT:	Mr. D.J. Nikols
CONTRACTOR:	Coal Mining Research Company
CONTACT:	Dr. M.A. Rashid
COST ESTIMATE, FUNDING:	$15,000
STATUS, TIMETABLE:	Completed
REPORTS:	Low Sulphur Coal Standards, M.A. Rashid and A.Y. Ayoub (CMRC) May 1986.

300

Analysis of trace elements in 260 coals and carbonaceous shales by neutron activation

(03SG 23294-6-0650; 23294-6-06501/01-SG)

SPONSOR:	EMR
CONTRACTOR:	Becqueriel Labs Incorporated, Mississaugs, Ont.
COST ESTIMATE, FUNDING:	$15,990
STATUS, TIMETABLE:	Awarded September 1986

301

Study to trace element contents of coals-parts of the Sydney Basin

SPONSOR:	EMR
CONTRACTOR:	Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING:	443,800

302

Mineral matter and trace element contents of Canadian coals

Determine if coal basins and contained seams are specific in terms of mineral matter and trace element contents. Relate concentrations to other coal constituents and geological factors such as depositional environments and coalification histories.

SPONSOR: EMR, GSC/ISPG
CONTACT: F. Goodarzi
COST ESTIMATE, FUNDING: $145 K
STATUS, TIMETABLE: Continuing
REPORTS: Fuel, vol. 64, Nov. 1985

303

Trace constituents program

SPONSOR: EMR, CANMET
CONTRACTOR: Environment Canada
COST ESTIMATE, FUNDING: $10 K
STATUS, TIMETABLE: Completed 1986

304

Mechanical properties of coal measure strata

Conduct index tests and mechanical property determinations of coal measure strata.

SPONSOR: EMR
CONTRACTOR: Jacques Whitford and Associates Ltd., Halifax, N.S.
COST ESTIMATE, FUNDING: $30,000

305

Determination of specialized measurements on coal and rock samples

SPONSOR: EMR
CONTRACTOR: Atlantic Coal Institute, Sydney, N.S.
COST ESTIMATE, FUNDING: $13,000

306

Coal data bank

SPONSOR: EMR
CONTRACTOR: Research and Productivity Council, Fredericton, N.B.
COST ESTIMATE, FUNDING: $14,932

307

Databank on eastern coals from Nova Scotia and New Brunswick

(25ST 23440-6-9024; 23440-6-9024/01-ST.

SPONSOR: EMR, CANMET
CONTRACTOR: University of New Brunswick, Fredericton, N.B.
CONTACT: Dr. W. Mersereau
COST ESTIMATE, FUNDING: $2,000
STATUS, TIMETABLE: Awarded August 1986

308

Thermal properties of peat deposits

Measurement of the thermal properties of a peat deposit and their changes weith time.

SPONSOR: EMR
CONTRACTOR: Geotherm Incorporated, Newmarket, Ontario
COST ESTIMATE, FUNDING: $41,600

309

Pulsing flow of coal slurries, Phase I: rheology

Rheological behaviour or coal/water, coal/oil, coal/methanol slurries was studied. Concentrations ranged from 30-50% by volume. As particle size decreased apparent viscosity increased at a given concentration. A high concentrations increasingly non-Newtonian behaviour was displayed. The effect of pH on apparent viscosity of water based slurries was also investigated.

SPONSOR:	EMR
CONTRACTOR:	McMaster University, Hamilton, Ontario
CONTACT:	Prof. G.E. Round
COST ESTIMATE, FUNDING:	$10,000
STATUS, TIMETABLE:	Completed
REPORTS:	Pulsing flow of coal slurries, Phase I: Rheology Nov. 1982

310

Surface tension effects on properties of coal suspensions

SPONSOR:	EMR
CONTRACTOR:	University of Toronto, Toronto, Ontario
CONTACT:	Dr. A.W. Newmann. Dept. of Mechanical Eng'rg
COST ESTIMATE, FUNDING:	$14,978

311

Characterization of virgin and hydrogenated liquids from spouted bed pyrolysis of Canadian coals

SPONSOR:	EMR, CANMET
CONTACT:	M. Skubnik
CONTRACTOR:	University of British Columbia
STATUS, TIMETABLE:	In progress

HEALTH AND SAFETY

312

Safe working practices around draglines

To produce a training film and manual regarding worker safety connected with the surface mining operations using draglines.

SPONSOR:	Alberta Occupational Health, Safety and Compensation
CONTRACTOR:	Coal Mining Research Company
CONTACT:	D.H. Green
COST ESTIMATE, FUNDING:	$47,000
STATUS, TIMETABLE:	In progress
REPORTS (TITLES):	"Waste Dump Design for Erosion Control" Report confidential to RRTAC

313

Determine methane content of coal samples collected from Cape Breton collieries

(13SC23305-6-3814; 23305-6-3914/01-SC)

SPONSOR:	EMR
CONTRACTOR:	Jacques Whitford and Associates Ltd., Halifax, Nova Scotia
COST ESTIMATE, FUNDING:	$10,972
STATUS, TIMETABLE:	Awarded September 1986

314

Survey of methane accumulation within coal silos

SPONSOR:	EMR
CONTRACTOR:	Associated Mining Consultants Ltd. Calgary, Alberta
COST ESTIMATE, FUNDING:	$69,250

315

Survey of methane accumulation in coal silos in western Canada

SPONSOR:	EMR, CANMET
CONTRACTOR:	Associated Mining Consultants Ltd.
CONTACT:	Alan L. Craven, P.Eng.
COST ESTIMATE, FUNDING:	$70 K
STATUS, TIMETABLE:	Completed
REPORTS (TITLES):	Survey of methane accumulation within coal silos. Available from CANMET OSQ 85-00006 and Micromedia Ltd.

316

A training manual and film for coal mine rib control

To produce a training film and manual for presentation to underground coal mine personnel to demonstrate the mechanics of failure of the coal mine rib.

SPONSOR:	Alberta Occupational Health, Safety and Compensation
CONTRACTOR:	Coal Mining Research Company
CONTACT:	Alan L. Craven, P.Eng.
STATUS, TIMETABLE:	Complete
REPORTS (TITLES):	Available from AOHSC

317

Advanced technology

Improve safety, productivity and resource recovery in eastern Canadian coal mines through the introduction of improved technology, equipment, and techniques.

SPONSOR:	CANMET, EMR
CONTRACTOR:	Inhouse
CONTACT:	D.B. Stewart
COST ESTIMATE, FUNDING:	$275 K
STATUS, TIMETABLE:	continuing

318

Dust control in coal mines

To assist in sponsoring a seminar during which the results of recent research work related to dust in underground coal mines will be made available to people involved in coal mining.

SPONSOR:	Alberta Occupational Health, Safety and Compensation Heritage Grant Program
CONTRACTOR:	Coal Mining Research Centre
CONTACT:	Don H. Green
COST ESTIMATE, FUNDING:	$2000.00
STATUS, TIMETABLE:	Complete

319

Methane-coal dust explosions

To acquire the necessary fundamental and empirical knowledge to predict the pressure time characteristics of coal dust-air explosions, with and without methane.

SPONSOR:	EMR, CANMET
CONTRACTOR:	McGill University
CONTACT:	Dr. J. Lee, Dept. of Mech. Eng
COST ESTIMATE, FUNDING:	$50 K (current FY)
STATUS, TIMETABLE:	Phases I & II completed, Phase III to be completed in March 1986

320

Sulphide ore dust explosions

To develop methods for mitigating this problem existent in some Canadian underground mines.

SPONSOR: CANMET
CONTRACTOR: Inhouse
CONTACT: D. Dainty/K. Mintz
STATUS, TIMETABLE: Started Jan. 1986

321

Coal dust Control

Preparation of a report entitled "Recommended Practices for Coal Dust Control.

SPONSOR: EMR
CONTRACTOR: Associated R&D Engineering Inc. Burnaby, B.C.
COST ESTIMATE, FUNDING: $8,400

322

A study of techniques for estimating the structure and dynamics of respirable dust

Laser doppler techniques are being used to investigate the dynamics of dust in personnel samplers such as miniature cyclones and cascade impactors. The fractal structure of some respirable dusts is being explored.

SPONSOR: CIMMER (Centre in Mining and Mineral Exploration Research), Laurentian University, Sudbury, Ontario
CONTRACTOR: Laurentian University Physics Department
CONTACT: J. Lebland and Dr. B.H. Kaye
COST ESTIMATE, FUNDING: $34,000
STATUS, TIMETABLE: Completion March 1987
REPORTS (TITLES): Available March 1987 from the CIMMER Group

323

Flammability of ventilation materials

Development of suitable large and small scale tests, particularly for formation of a national standards.

SPONSOR:	CANMET
CONTRACTOR:	Inhouse
CONTACT:	K. Mintz
STATUS, TIMETABLE:	Expected completion 1988

324

Flammability of hydraulic fluids

Development of tests to evaluate the long-term stability of

SPONSOR

325

Diesel flameproof and ventilation R&D

In order to define the levels of diesel emissions and reduce their impact on the health of all underground workers, CANMET/MRL/CEAL has undertaken inhouse and contracted-out R&D projects broadly including: 1. dieselized mine environment monitoring, 2) diesel-related health impact studies, and 3) equipment development for emmission reduction.

SPONSOR:	EMR, CANMET/MRL/CEAL
CONTRACTOR:	ORF, Laurentian University, McMaster University, INCO, Engine Control Systems and Jaren's Clark

COST ESTIMATE, FUNDING inhouse: $272 K (4.5 py)
contracted-out: $236 K

STATUS, TIMETABLE: Collaborative USBM/MSL/CANMET Program Completion - June 1987, PILP Transfer of technology to private sector completion - March 1989, Completion of CANMET monograph on diesel emissions - March 1989.

REPORTS (TITLES):
1. "Evaluation of diesel emissions control technology at COMINCO's Sullivan Mine" MRP/MRL 85-56(OP,J).
2. "Characterization of ceramic diesel exhaust filter auto-regeneration in a hard rock mine" MRP/MRL 85-38(OP,J).
3. "Development of the AQI/EQI concept - a ventilation performance standard for dieselized underground mines" ERP/MRL 85-55(OP,J).
4. "Investigation of the CTO emission control system applied to heavy-duty diesel engines used in underground mining equipment" MRP/MRL 85-4(OP,J).
5. "Performance of conventional and advanced water scrubbers for controlling underground diesel exhaust emissions" M&ET/MRL 86-11(OP,J).
Available from CANMET

326

A training manual and film for material handling around draglines

To produce an instructional film and printed manual on safety precautions and procedures for materials handling in the dragline operation in surface coal and tar sand mines.

SPONSOR: Alberta Occupational Health, Safety and Compensation, Heritage Grant Program

CONTRACTOR: Coal Mining Research Centre

CONTACT: Don H. Green

COST ESTIMATE, FUNDING: $44,975

STATUS, TIMETABLE: In-progress

327

Guidelines for safety features in the design of coal silos and loadout tunnels

To produce guidelines for safety features designed to prevent explosion and fire in the storage and loadout of clean coal.

SPONSOR:	Alberta Occupational Health, Safety and Compensation, Heritage Grant Program
CONTRACTOR:	Associated Mining Consultants Ltd.
CONTACT:	A.L. Craven and P.L. Wright
COST ESTIMATE, FUNDING:	$42,293
STATUS, TIMETABLE:	In-progress completion Aug. 1986

328

Pharmokinetics of polycyclic aromatic hydrocarbons

SPONSOR:	Health and Welfare Canada, Bureau of Chemical Hazards
CONTRACTOR:	University of Guelph, Guelph, Ontario
CONTACT:	Dr. W.D. Black, Dept. of Biomedical Sciences
COST ESTIMATE, FUNDING:	$24,000
STATUS, TIMETABLE:	March 1986
INDEX:	polycyclic aromatic hydrocarbons

ENVIRONMENTAL ASPECTS

329

Assessment of the environmental implications of fine coal refuse generated by the AED Electrostatic Coal Cleaning Process on samples of Nova Scotia and New Brunswick coals

This report characterizes coal rejects from the AED coal cleaning process with respect to their acid generating potential, heavy metal and trace element content and identifies and quantifies potential contaminants which could be leached from them under a variety of environmentally realistic leaching conditions.

SPONSOR:	Environment Canada EMR, OERD
CONTRACTOR:	AED Inc., Ocean Chem. Group Ltd.
COST ESTIMATE, FUNDING:	$23,000
STATUS, TIMETABLE:	Report in preparation
REPORTS (TITLES):	July 1986, 3M Division, IPB, Conservation and Protection Service, W.B. Blakeman

330

Dust control equipment

Preparation of a training module for operators of dust control equipment for unit coal trains.

SPONSOR:	Department of the Environment, Canada
CONTRACTOR:	C.G. Environmental Engineering Ltd., Burnaby, B.C.
COST ESTIMATE, FUNDING:	$23,921

331

Report on the characterization of particulate and gaseous emissions from the coal-fired coal dryer at Bullmoose operating corporation, Tumbler Ridge, British Columbia

SPONSOR:	EMR, OERD
CONTRACTOR:	Environment Canada
COST ESTIMATE, FUNDING:	$60,000 (shared funding)
STATUS, TIMETABLE:	Complete (October 1985)
REPORTS (TITLES):	3M Division, IPB, Conservation and Protection Service, W.B. Blackman

332

Report on the characterization of particulate and gaseous emissions from the coal-fired coal dryer at Westar Mining Ltd. Sparwood, British Columbia

SPONSOR:	EMR, OERD
CONTRACTOR:	Environment Canada
COST ESTIMATE, FUNDING:	$60,000 (shared funding)
STATUS, TIMETABLE:	Complete (October 1985)
REPORTS (TITLES):	3M Division, IPB, Conservation and Protection Service, W.B. Blakeman

333

Report on the characterization of particulate and gaseous emissions from the coal-fired coal dryer at the Luscar Sterco Coal Preparation Plant, Coal Valley, Alberta

SPONSOR:	EMR, OERD
CONTRACTOR:	Environment Canada (western and northern region)
COST ESTIMATE, FUNDING:	$100,000
STATUS, TIMETABLE:	Report in preparation
REPORTS (TITLES):	Not available

334

Polynuclear aromatic hydrocarbon residues associated with ash lagoons and coal storage piles at the Victoria Junction Coal Preparation Facility, Tufts Cove and Lingan Thermal Power Generating Stations

SPONSOR:	Environment Canada
CONTRACTOR:	Ocean Chem. Group
COST ESTIMATE, FUNDING:	$6,350 (FY 85/86)
STATUS, TIMETABLE:	Complete (June 1985)
REPORTS (TITLES):	3M Division, IPB, Conservation and Protection Service, W.B. Blackman

335

Status report on environmental protection in the Canadian coal industry

This status report will present current environmental practices at Canadian coal mines, preparation plants and transfer/storage terminals with respect to current air, water and solid waste collection, treatment and pollution abatement practices.

SPONSOR:	Environment Canada
CONTRACTOR:	Environment Canada
CONTACT:	W.B. Blakeman, 3M Division, IPB
COST ESTIMATE, FUNDING:	$5,000 (estimated)
STATUS, TIMETABLE:	Report in preparation
REPORTS (TITLES):	Not available until November 1986

336

Status report on advanced coal cleaning technology for sulphur removal (title is tentative)

This report will assess the present status and environmental implications of emerging and near commercial coal cleaning technologies that have the greatest possibility of immediate

application for sulphur removal from high sulphur thermal coals. Coal cleaning technologies considered will be: conventional physical; advanced physical; chemical and biological.

SPONSOR:	Environment Canada/LRTAP
CONTRACTOR:	Consultant (to be determined)
COST ESTIMATE, FUNDING:	$40,000 (approx.)
STATUS, TIMETABLE:	To be commenced in early FY 86/87
REPORTS (TITLES):	Not available until early 1987

337

Water use in the coal mining industry: current and forecast

This report addresses the subject of water use by Western Canadian coal facilities up to the year 1990 by applying water use coefficients to current and forecasted coal production data. Water used in coal production is compared to water uses in other sectors to determine if there are constraints to development in these other sectors.

SPONSOR:	EMR, OERD
CONTRACTOR:	W.B. Barrie and Associates
COST ESTIMATE, FUNDING:	Environment Canada $9,000 (approx.)
STATUS, TIMETABLE:	Complete (May 1985)
REPORTS (TITLES):	3M Division, IPB, W.B. Blakeman

338

Phosphorous from operating surface coal mines

This literature review characterises and quantifies all forms of phorphorous releases to natural surface waters from western Canadian bituminous coal mines.

SPONSOR: EMR, OERD

CONTRACTOR: Norecol Environmental Consultants Ltd.

COST ESTIMATE, FUNDING: $10 K (84/85)

STATUS, TIMETABLE: Complete (June 1985)

REPORTS (TITLES): 3M Division, IPB, W.B. Blakeman

339

Release and treatment of nitrogen compounds to the environment from ammonium based explosives used in coal mining

This study examines the release and treatment of nitrogen containing compounds to the environment from ammonium based explosives used in coal mining. In completing this report, a literature review and field sapling programs were performed to determine the extent of release of ammonium compounds. Results from lab bench scale studies, performed to determine treatability of these wastewaters, are also to be presented.

SPONSOR: EMR, OERD
DSS

CONTRACTOR: EPS, Pacific Region/Norecol Environ. Consultants/J. Leaske

CONTACT: W.B. Blakeman

COST ESTIMATE, FUNDING: For 85/86: $48,000 PERD
$40,000 DSS

STATUS, TIMETABLE: In preparation

REPORTS (TITLES): Mid to late 1987. From 3M Division, IPB/Mining Section EC, Conservation and Protection, Pacific & Yukon Regional Office, W.B. Blakeman

340

The national coal wastewater study: trace elements and optical compounds in Canadian coal wastewaters

This study is the result of an extensive, nation-wide wastewater sampling program conducted at several Canadian coal facilities, including mines (surface and underground), preparation plants and storage/transfer terminals. Wastewater streams, sampled included: Pit water, underground drainage, seam dewatering water; mine site runoff, preparation plant process water; coal pile runoff. This report cites organic compound data from the UBC Report.

SPONSOR:	EMR, OERD/Environment Canada
CONTRACTOR:	Environment Canada Dearborn Environmental Consulting Services Cantest Ltd. University of British Columbia W.B. Barrie & Associates Ltd.
CONTACT:	W.B. Blakeman
COST ESTIMATE, FUNDING:	$50,000
STATUS, TIMETABLE:	Report completed; currently under review and modification
REPORTS (TITLES):	First draft report available from 3M Division, IPB, W.B. Blakeman

341

Reclamation research: surface mined lands

To determine methods of establishing a long-term, self sustaining vegetative cover on reclaimed lands that is in harmony with the adjacent undisturbed areas.

SPONSOR:	Smokey River Coal Ltd. Alberta Research Council
CONTACT:	Vernon Betts, Smoky River Coal Limited

CONTRACTOR: Alberta Research Council
COST ESTIMATE, FUNDING: $50,000 annually
STATUS, TIMETABLE: Began in 1972, ongoing
REPORTS (TITLES): Internal Annual Reports

342

Small structures on reclaimed land study

To determine the nature, magnitude and location of settlement of land reclaimed after open pit mining, and to determine if light structures can be founded on this reclaimed land.

SPONSOR: Trans Alta Utilities Corporation
CONTACT: P.C. Roxburgh, Manager, Energy Resources Planning
D. Nikols
CONTRACTOR: University of Alberta, S. Thomson, D. Sego, D. Scott, T. Schulz, R. Sonnenberg
COST ESTIMATE, FUNDING: $400,000 (over the 5 year period)
STATUS, TIMETABLE: In 5th (final) year
REPORTS (TITLES): 10 Data, Progress or Summary Reports have been written since 1982, as well as Executive Summary Reports in the last 3 years.

343

Post-reclamation settling study

Observation pins have been placed on recontoured spoil to monitor horizontal and vertical movements of reclaimed land.

SPONSOR: Trans Alta Utilities Corporation, (P. Venner)
STATUS, TIMETABLE: Continuing

344

Peat harvesting, processing and utilization

Development of environmental protection criteria and technologies for peat harvesting, processing and utilization in Canada.

SPONSOR: Environment Canada
CONTRACTOR: Monenco Ltd., Halifax, N.S.
COST ESTIMATE, FUNDING: $34,500

WASTE MANAGEMENT

345

Alternate tailings disposal in-pit backfill

To conduct a preliminary investigation regarding the ramifications of disposing preparation plant tailings in cells constructed on surface mine waste backfill, as well as in-pit disposal.

SPONSOR:	Alberta-Canada Energy Resources Research Fund
CONTRACTOR:	Coal Mining Research Company,
CONTACT:	R.G. Chopiuk
COST ESTIMATE, FUNDING:	$30 K
STATUS, TIMETABLE:	Completed March 1985
REPORTS (TITLES):	Final report submitted (confidential) to AORCT

346

Ash disposal site design

To design the disposal of dry ash in a manner that reduces leachate and enhances dilution for Alberta conditions.

SPONSOR:	TransAlta Utilities Corporation
CONTRACTOR:	TransAlta, Monenco Ltd.
CONTACT:	A. Hickenbothan
COST ESTIMATE, FUNDING:	$100 K
STATUS, TIMETABLE:	In progress

347

Ash leachate

Characterization of ash and its leachate in old ash lagoons.

SPONSOR:	TransAlta Utilities
CONTACT:	A. Hickenbothan
COST ESTIMATE, FUNDING:	$100 K
STATUS, TIMETABLE:	Completed

348

Waste water treatment

Development of a waste treatment system for biomass or coal conversion wastewaters.

SPONSOR: EMR
CONTRACTOR: Ontario Research Foundation, Mississauga, Ontario
COST ESTIMATE, FUNDING: $111,990

349

Coal mine waste water

Study of nitrogen rich coal mine wastewater treatment and disposal alternatives.

SPONSOR: Environment Canada
CONTRACTOR: Norocel Environmental Consultants Ltd., Vancouver, B.C.
COST ESTIMATE, FUNDING: $50,000

350

Waste dump design for erosion control

To determine the influence of waste dump configuration (slope angle and length) age, surface features and material characteristics on surface erosion of resloped coal mine waste dumps in the foothills/mountain regions of Alberta.

SPONSOR: RRTAC (Alta. Environment)
CONTRACTOR: Coal Mining Research Company
CONTACT: R.G. Chopiuk
COST ESTIMATE, FUNDING: $50,000 (fiscal year 1985-6)
STATUS, TIMETABLE: Complete, March 1986
REPORTS (TITLES): "Waste Dump Design for Erosion Control" Report confidential to RRTAC

TRANSPORT & HANDLING

351

Engineering and environmental considerations of the co-utilization of existing crude oil pipelines

This report examines the engineering pre-feasibility, and the environmental and socio-economic concerns relating to the co-utilization oil crude of pipelines for both crude oil and coal slurry.

SPONSOR:	EMR, OERD Environment Canada
CONTRACTOR:	Monenco Consultants Ltd. (Martyn Riddle, Manager, Environmental Division)
COST ESTIMATE, FUNDING	OERD ($40,000 approx)
STATUS, TIMETABLE:	Complete (March 1985)
REPORTS (TITLES):	First draft available from K. Wachman, Transportation System Division, IPB, Conservation and Protection, 13th Floor, PVM

352

Peat slurry pumping

Peat slurry pumping and pipeline trials on a Canadian peat land site (OSZ85-00158).

SPONSOR:	National Research Council Canada
CONTRACTOR:	Monenco Consultants Ltd., Rexdale, Ontario
COST ESTIMATE, FUNDING:	$390,715
STATUS, TIMETABLE:	Awarded February 1986

353

Handleability

Develop methods for improving the transportation, storage and handling charcteristics of western Canadian coals. Develop and improve methods for evaluating the inherent dustiness of coals.

SPONSOR: EMR, CANMET
CONTRACTOR: Inhouse
CONTACT: N.E. Anderson
COST ESTIMATE, FUNDING: $80 K
STATUS, TIMETABLE: 1991 completion

354

Coal car covers

Development of a design and test program for coal car covers.

SPONSOR: Environment Canada
CONTRACTOR: Swan Wooster Engineering Co. Ltd., Vancouver, B.C.
COST ESTIMATE, FUNDING: $9,969

355

Slurry pipelining

Study of flow conditions arising in horizontal coarse slurry short distance pipelining practice.

SPONSOR: EMR
CONTRACTOR: C.A. Shook Consulting Ltd., Saskatoon, Saskatchewan
COST ESTIMATE, FUNDING: $240,830

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